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UNITED STATES DISTRICT COURT — EASTERN DISTRICT OF NEW YORK

BLUE CROSS AND BLUE SHIELD OF NEW JERSEY, et al., Plaintiffs, vs. PHILIP MORRIS, INCORPORATED, et al., Defendants. — CASE NO. 98 Civ. 3287 (JBW)

ROBERT A. FALISE, LOUIS KLEIN, JR., FRANK MACCHIAROLA, TRUSTEES, Plaintiffs, -against- THE AMERICAN TOBACCO COMPANY; B.A.T. INDUSTRIES, PLC; CORPORATION; PHILIP MORRIS INC.; LORILLARD TOBACCO — CHRISTIAN E. MARKEY, JR., as R.J. REYNOLDS TOBACCO COMPANY; BROWN & WILLIAMSON TOBACCO INCORPORATED; LIGGETT GROUP, COMPANY, Defendants. — CASE NO. CV99-7392(JBW)

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VIDEOTAPED DEPOSITION OF B. SCOTT APPLETON, Ph.D.

MAY 23, 2000 — VOLUME I

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By Ms. McDevitt ..... ^^

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Videotaped Deposition of B. SCOTT APPLETON, Ph.D., taken on behalf of the Plaintiffs, pursuant to the stipulations agreed to herein, before Suzanne Beasley, Registered Professional Reporter and Notary Public, at Suite 4500, 191 Peachtree Street,

http://legacy.library.ucsf.edu/tid/jzn05a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/qsxd0001

Atlanta, Georgia, on the 23rd day of May, 2000, commencing at the hour of 9:50 a.m.

- - -

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Also Present: J. Kendrick Wells, III, Esq. Brown & Williamson Tobacco
Mr. Robert Stampes, Kirkland & Ellis

Videographer: Mr. Tom Sheats, Interim Court Reporting

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MR. DUNNE: Let me just say a few words here. As I understand the procedure, and I agree with it, what will happen is

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Heather McDevitt will ask questions first on behalf of Blue Cross Blue Shield, then Dennis LaRochelle will ask his questions on behalf of the Falise. Then to the extent that Blue Cross -- I mean Brown & Williamson has any direct in the Blues case, I'll ask questions, and then to the extent that Brown & Williamson has any direct in the Falise case, Deirdre Fox will ask questions. Then you'll have an opportunity to do recross in the same order. That's number one.

Number two, it is likely, I am told, that there will be Blyley documents used in this deposition. I just want to say that pursuant to the order entered by Judge Gold on November 17th, amended on the 22nd, 28th of December '99 over the objections of Brown & Williamson and other tobacco Defendants which allows the use of Blyley documents, but it's without the

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waiver of the privilege asserted by the Defendants, and any part of the deposition in which those documents are used will be placed under seal and not disclosed without further order of the Court.

To the extent she can, Ms. McDevitt has said she would advise us when she is going to use Blyley documents. We have a list here. We will double check that. If Blyley documents are being used, we'll abide by the Court's orders in the fashion in which they will be used. Obviously we are objecting to them. And then the portions of the deposition that are using Blyley documents will be confidential and under confidential order.

What we propose to do is that the entire transcript be placed under seal until we have the opportunity to review it and make sure what portions are confidential and what aren't, and we would do that within 10 days of the receipt of the final transcript.

Other than that, I say no further. You can say what you wish and start.

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MS. McDEVITT: That's right. I'll just state for the record that, as you know, this deposition is cross-noticed in both the Blue Cross and Falise actions for the convenience of all of the parties. Obviously we've had issues in the past with counsel who have conflicts in the Blue Cross case. Pursuant to agreement of the parties, Mr. Dunne will be representing the witness during the Blue Cross examination, and then counsel from Kirkland & Ellis will be representing the witness during the Falise examination.

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MR. DUNNE: That is true and agreeable to us.
MS. McDEVITT: Great.
(Discussion ensued off the record.)
MS. FORBES: On the record, do we have an agreement that an objection by one Defendant stands for all the Defendants --
MS. McDEVITT: Yes.
MS. FORBES: -- so we don't have to --
MR. BROAS: Yes.
MS. FORBES: -- fill the record with --

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MS. McDEVITT: That's fine.
(Discussion ensued off the record.)
(An introductory statement was made by the videographer.)

B. SCOTT APPLETON, Ph.D.,
having been duly sworn, was examined and deposed as follows:

EXAMINATION

BY MS. McDEVITT:

Q Dr. Appleton, as you heard before when we introduced ourselves earlier, I'm Heather McDevitt from Dewey Ballantine. We represent the Plaintiffs in the Blue Cross Blue Shield action pending in the Federal Court in the Eastern District of New York in Brooklyn.
Could you please state your business address for the record.
A I'm not sure if I remember the exact address. It's at -- Brown & Williamson is located in Macon, Georgia. It's on -- can I see my business card? I forgot the exact road number.
MR. DUNNE: They get easier after this, Doctor.
THE WITNESS: 2600 Weaver Road, Macon, Georgia, 31217.

BY MS. McDEVITT:

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Q What is your current employment?
A I'm a director of scientific and regulatory affairs, Brown & Williamson.
Q A director or the director?
A Well, for that particular function, the director. There are other directors at Brown & Williamson.
Q For how long have you held that position?
A Probably about six or seven years.
Q Now, Dr. Appleton, you've been deposed before, correct?
A Yes.
Q And in the deposition, I'll be asking you questions. The court reporter will take down the questions, and if I ask a question that you don't understand for any reason or that seems unclear, just please let me know, and I will do my best to clear it up. Is that all right?
A Uh-huh.
Q And if you need a break at any time, please let me know, and we'll see about, you know, finishing an answer if there's a question pending and then take a

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break. Is that all right?
A Okay.
Q Now, are you taking any medication or drugs
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that might affect your ability to testify today?
A No.
Q Are you currently under a doctor's care for any illness?
A No.
Q How many times have you been deposed before?
A I suppose it depends on how you count them, but I think six or seven times.
Q Okay. In what cases were you deposed?
A I'll have to think about it. A case for, when I was working for RJR, and I forgot the name of the plaintiff on that one. Broin, Engle, Minnesota, I think the State of Texas, AG case, Hoberman, and I may have missed one or so.
Q And you've also testified at trial before; is that right?
A That's correct.
Q How many times?
A Three times.
Q And what trials did you testify on?
A Broin, Dunn and Minnesota AG.
Q What were the results of those trials?
A Broin was settled, Minnesota AG was settled, and Dunn went to completion.
Q What are your duties as director of
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scientific and regulatory affairs for Brown & Williamson?
A I cover a range duties. One of the primary functions is to conduct regulatory and safety evaluations of new materials, new ingredients, cigarette design parameters and so forth involved with construction and fabrication of cigarettes.
I am responsible for maintaining awareness of the scientific and health effects literature pertaining to smoking and health and monitoring that and staying up to date in that area.
I'm responsible for developing any types of capabilities that are needed to make assessments on tobacco products, such as testing capabilities, et cetera; to advise the company on safety matters in general, smoking and health matters, and various regulatory matters concerning the product, tobacco products.
Q So it's fair to say that you're responsible for the safety of Brown & Williamson's products?
A I'm responsible for evaluating health effects related aspects as well as regulatory aspects.
Q What is your compensation?
A I don't know the exact numbers, but I think my base salary is probably in the 140's, the mid 140's,
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maybe the high 140's.
Q Does that include a bonus?
A Sometime, yes, when bonuses are available.
Q All right. Under what criteria are bonuses

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evaluated?
A It depends on the performance of the company really, and there's sort of a rating system on, you know, performance against expectations, against market share, against profit, what our safety record has been, what sort of -- for the plant, what sort of waste reduction targets have been achieved, so there's this whole complex formula of various targets against which we're measured, and if we stack up, depending on how we stack up, we get a different rating, and then the overall bonus is sort of geared as a percentage based upon the rating that the company gets from the parent company.
Q Did you receive a bonus last year?
A Yes.
Q What was the amount of that bonus?
A The exact amount, I forget, but I think the gross was probably in the mid 40's.
Q Have you received any stock options over the course of your employment with Brown & Williamson?
A No.

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Q Do you own any Brown & Williamson stock?
A I think I have some B.A.T. stock. There's sort of a -- and I forgot what it's called. It's a small program. It's sort of a matching, matching fund program where if you purchase a certain amount of shares, they'll match a certain amount of shares, but it's a very small cap, an annual cap that you're allowed to get. I'm not even sure what the name of that is, but that's -- I've got that.
Q Do you own stock in any other B.A.T. entity?
A No.
Q Now, another duty you hold as director of scientific and regulatory affairs is to provide litigation support; is that right?
A I'm, well, I'm called upon to provide technical support in various smoking health related matters, and sometimes that does involve litigation support.
Q And one of your duties is to testify for the company; is that right?
A That's correct.
Q Before joining Brown & Williamson, you were employed by R.J. Reynolds; is that correct?
A Immediately before joining Brown & Williamson, I was employed by a food ingredient

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company. The name is Fries & Fries. They've since changed their name now because of various acquisitions and so forth. And then prior to that I was employed by R.J. Reynolds.
Q What was your position with R.J. Reynolds?
A I think the final position was, I forgot the exact title, probably senior scientist, regulatory affairs, or scientific and regulatory affairs.
Q What were your duties and responsibilities in your final position at R.J. Reynolds?
A They were similar to what I'm doing now, but probably more restricted. It was involved again in making assessments of the safety and regulatory status

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of ingredients primarily used in cigarette products.
Q For how long were you employed by R.J. Reynolds?
A Approximately four years.
Q So you were at R.J. Reynolds for four years and you've been at Brown & Williamson for going on ten years now; is that right?
A I think it's probably about nine years.
Q Nine years?
A I think my anniversary is this month, actually.
Q So is it fair to say that you've been

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employed by the tobacco industry for the majority of your career?
A Yes.
MS. McDEVITT: I'll mark as Appleton Exhibit 1 a document entitled Expert Report of Scott Appleton, Ph.D.
(Appleton Exhibit No. 1 was marked.)
BY MS. McDEVITT:
Q Is this a -- have you had an opportunity to look at the document that's been marked as Appleton Exhibit 1?
A Yes.
Q Is this a true and accurate copy of the expert report you submitted in the Blue Cross action?
A It appears to be.
Q Can I turn your attention to your CV, which is following page 18 of your report?
A Yes.
Q Is this an up-to-date version of your CV?
A Not really.
Q All right. What do you have to add to it?
A Well, I'd probably need to make some revisions. It says here I'm responsible for responding to consumer inquiries, the toll-free number. I was responsible for that several years ago, but that

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function no longer reports to me.
Q When did that function stop reporting to you, rough numbers?
A Probably two or three years ago. I think we're down to eight staff now. It says nine-member staff.
Q All right. Are there any other additions or revisions?
A Those are the major ones.
Q I would note on the last page of your CV, which is page six, there's a date at the bottom, which is February 12th, 1997.
A Right.
Q Have you revised this document subsequent to that date?
A Yes, I have made revisions in my CV.
MS. McDEVITT: Could I -- I'd like to request a copy of the revised CV.
MR. DUNNE: We will get you a copy of the revised one.
MS. McDEVITT: Thank you.
BY MS. McDEVITT:

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Q Are there any other additions to the CV? I mean, for example, drawing your attention to page four under Invited Presentations and Reviews or Professional

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Societies, for example, is there anything that you can point out for our purposes today?

A Yeah. I mean, without having given it much thought, I gave a presentation recently to the National Academy of Sciences Institute of Medicine committee. I forgot the exact name of the committee, but it's something along the lines of Committee to Assess the Science Base for Tobacco Harm Reduction. That was a couple of months ago.

Q What was the topic of that presentation?

A The science base for assessing cigarettes that have been modified to reduce health risks.

Q Can you describe for me the substance of your presentation?

A Yeah. Basically what I went through was a brief summary of the science that suggested that different cigarette types may have different health risks, and because of that, there might be a basis for evaluating changes in products, assuming that that might be the case, for possible differences in risk potential, what sort of measurements have been employed in the past to measure differences in cigarettes, what different cigarette product characteristics have shown different types of effects in those tests.

Q Did you prepare any written materials for

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this presentation?

A Yes.

Q What were they?

A It was some slides for a presentation, and then some texts to accompany those slides.

Q How long was this presentation?

A In time?

Q Uh-huh.

A About an hour.

MS. McDEVITT: Counsel, I would also request production of the slides and texts from the presentation that Dr. Appleton just described.

MR. DUNNE: Let me talk to him. I don't think it's going to be a problem, but I just want to talk to him and make sure that it's not a problem.

MS. McDEVITT: That's fine.

BY MS. McDEVITT:

Q Did you base your presentation on any studies or research that you had performed?

A Literature research, yes, but not any laboratory research that I had hands-on, direct involvement with.

Q Did you base that presentation on any

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research or studies that were performed at Brown & Williamson that you weren't directly involved with?

A Not by Brown & Williamson, but in part just

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general knowledge from research that was available from BATCo. But I don't think I referred to any BATCo research, though, in the presentation.

Q Okay. Is there anything else that you can recall, looking at the entry Invited Presentations and Reviews, that you would add to the CV?

A No, not offhand.

Q What about under Professional Societies and Trade Association Activities?

A Yeah, I think some of these have dropped off. Well, I think I give the dates here actually in cases where I was a member for a particular time frame, so I don't know if I would say they've dropped off, but some of them are limited by the dates.

Q Do you have anything to add?

A No. I haven't joined any new professional societies or trade associations.

Q If you turn to the next page of your CV, I would ask the same question with respect to the entry Published Manuscripts. Anything to add?

A I don't think that there have been any new

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published materials.

Q When were you retained as an expert witness in the Blue Cross action?

A Oh, I don't know when, I don't know when that would start. I've been working with my lawyers for several months now, but I don't know what would signify a date when I became retained.

Q But at some point in time, you were asked to --

A Right.

Q -- serve as an expert witness in the Blue Cross case?

A I would say within the past year.

Q Do you recall who retained you?

A I was contacted by Deirdre.

Q For the Blue Cross case?

A No. The first contact actually for Blue Cross, I forgot the gentleman's name from Sedgwick. He had called me saying that he needed to prepare an expert report, but I forgot his name.

MR. DUNNE: For the record, it's Eric Krause.

MS. McDEVITT: Yes.

BY MS. McDEVITT:

Q Who prepared this expert report which has

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been marked as Appleton Exhibit 1?

A This one, we had an existing expert report and we sort of worked off that, and I believe it was Mr. Krause. That's the person that I worked with.

Q Who actually drafted it?

A It was him.

Q All right. And he provided you with a draft?

A Right.

Q And then you reviewed it?

A Right. And then I had some changes, and we sort of talked it over on the phone.

Q Did anyone else comment on the report?

A Not that I'm aware of.

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Q So it was just you and Mr. Krause preparing it?
A Yes.
Q All right.
A But I've never actually met the gentleman. That's why I had trouble remembering his name. It was just all by phone.
Q You've prepared other expert reports in other actions; is that right?
A Yes.
Q Was the same process employed to prepare those reports?

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A Pretty much, yes.
Q Do you recall any differences between the report that you've submitted in the Blue Cross case and your previous expert reports?
MR. DUNNE: Object, overly broad.
If you remember, you can -- if you can think of any, go ahead.
THE WITNESS: Well, there's, I mean, there's been some evolution of report, yes.

BY MS. McDEVITT:

Q Can you describe the subject areas as to which there's been some evolution?
A Well, there are some subject matters that are specific to certain cases, like in Falise, you've got asbestos. Probably the largest area would be the discussion about general smoking health issues, general causation issues. There's been some changes from my earliest reports.
Q What were those changes with respect to the causation issues?
MR. DUNNE: Object, overly broad.
Go ahead. You may answer.
THE WITNESS: The major changes were to reflect the information we have

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that we're currently publicly communicating through our Web site.

BY MS. McDEVITT:

Q Do you recall any other changes with respect to prior reports?
A Well, it would be changes in the general smoking health areas and probably addiction as well, but I don't have -- I haven't looked at an old expert report in a while, so it would be hard for me to identify exactly what's changed. I would say that's the major changes that I can recall.
Q Have you reviewed the complaint filed in the Blue Cross action?
A No.
Q Have you reviewed any other pleadings from that case?
A No.
Q Do you understand that the Blue Cross action is a case brought on behalf of 20 separate Blue Cross Blue Shield plans who are asserting they have a right to be reimbursed for smoking related diseases that are suffered by their subscribers?

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A I understand it's by a group, but I don't know the exact number.
MR. DUNNE: I'm not sure 20's
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correct either.
MS. McDEVITT: Well, we flip-flopped, 20, 21. You guys would say a substantially larger number, right?
BY MS. McDEVITT:
Q Did you do anything to prepare for your deposition today?
A Yes.
Q What did you do?
A I reviewed some basic smoking and health literature in the basic areas that I would anticipate wood come up, including the things in my expert report. I consulted with my lawyers. That would basically be it.
Q How many times did you meet with your lawyers?
A I don't know the exact number. Maybe three, four, five times. The case has been moved on several occasions and rescheduled, and each time we thought we had something going, then we would have a meeting, and then it would be canceled, and that process sort of happened several times.
Q When was the last time you met with your lawyers in preparation for your deposition?
A Yesterday.
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Q How long was that meeting?
A Probably about six hours total.
Q Did you review any other documents in connection with preparing for your deposition today?
A Some internal documents, yeah.
Q Did you make any notes in the course of your preparation for today's deposition?
A None that I have kept.
Q Now, you have a doctorate in toxicology, right?
A That's correct.
Q Can you describe what toxicology is?
A Right. It's basically the science of the harmful effect of chemical substances, and it's actually a multidisciplinary discipline. It draws on the fields of pharmacology, physiology, biochemistry, anatomy, pathology, statistics and several other biomedical sciences, but its main focus is to again focus on the harmful effects of chemical substances.
Q All right. Can you describe the training you received in connection with receiving a doctorate in toxicology?
A Yes. I took courses in some of the areas I just described, which is pathology, took some courses in nutrition, took courses in statistics, biochemistry,
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some specific toxicology courses, which covered, touched on specific issues like general toxicology, pesticide toxicology.
Each of those areas had various disciplines

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associated with them such as toxic effect of chemicals on various systems such as the circulatory system, the pulmonary system, the cardiovascular system, the liver, neurotoxicology, endocrinology. It focused on specific agents, like metals, animal venoms, industrial chemicals, pharmaceuticals.

Then we had, it was a research program as well since it was a Ph.D., so I did some basic fundamental research in the area of cancer and the effect of lifestyle factors on cancer development.

Q Did you study at that time the impact of smoking on health?

A No, not directly.

Q But indirectly?

A Well, in a way. I mean, I covered areas that were relevant to it, such as cancer research in general. I did cancer research myself, chemical metabolism, DNA addict formation, some heart disease and cardiovascular research, but not directly smoking.

Q Do you consider yourself to be an expert in toxicology?

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A Yes.

Q Do you consider yourself to be an expert in pharmacology?

A No.

Q Do you consider yourself to be an expert in the behavioral sciences?

A I've got a lot of experience in it or I've done a lot of reading, but I wouldn't consider myself to be an expert.

Q Do you consider yourself to be an expert on cigarette design?

A No. I'm familiar with it. I work, you know, obviously for the industry, so I'm very familiar with it, but I wouldn't regard myself as an expert.

Q Do you consider yourself to be an expert on addiction?

A Again, it's an area that I've spent a lot of time reading in and it's -- and so I'm very familiar with the research literature, but I don't know if I'd regard myself as an expert.

Q Do you consider yourself to be an expert on environmental tobacco smoke?

A It's an area that I'm very familiar in. I guess I would consider myself to be an expert in that area.

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Q All right. Have you undertaken any research in the field of environmental tobacco smoke?

A I've done extensive literature research. I haven't done any hands-on bench level type research myself.

Q Now, you're not a medical doctor, right?

A That's correct.

Q So you wouldn't consider yourself to be an expert in diagnosis of disease; is that right?

A That's correct.

Q Turn your attention, if you would, Doctor, back to your expert report, and immediately following the last page of your CV is a document entitled Master

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Index of Scott Appleton Reliance Materials.
A Right.
Q Have you seen this document before?
A Yes.
Q Do you understand this to be an accurate listing of the documents you've reviewed in preparing the opinions as to which you will testify?
A Yes.
Q Who prepared this list?
A I'm not really sure who prepared the list. I assume my attorneys at Sedgwick. I didn't directly prepare it, but I was involved with consultation with

attorneys on what documents I reviewed.
Q Did you provide them a list of the documents you reviewed?
A Yes. I actually provided them a lot of the documents.
Q Now, I'll note at the top of page one of 55 of the master index of Scott Appleton reliance materials there's a date, 1 November 1999. Do you know if there's an updated list of these materials in existence?
A No, I don't know.
Q Do you know based on, you know, your brief purview of this document whether you would have any additional documents to add to this reliance list?
A No, I'm not aware of anything I would add based on the review I've just done.
Q Now, you've reviewed company documents in connection with preparing your opinions as to which you'll testify; that's right, isn't it?
A Yes.
Q How do you obtain the company documents?
A Through various mechanisms. Sometimes my lawyers give them to me. Sometimes I access them through the library. Sometimes I access them from the Internet. Some of them I just may have had in my

files. Sometimes people just give them to me because I ask for them, so all kinds of ways.
Q Can you give me a ballpark figure of how many company documents you believe you've reviewed over the course of your tenure at Brown & Williamson?
MR. DUNNE: Object, overly broad.
That's for the nine years?
MS. McDEVITT: That's correct.
MR. DUNNE: If you can, go ahead.
THE WITNESS: I mean, it would just be a guess. Probably, I mean, it would be several hundred, probably approaching a thousand.
BY MS. McDEVITT:
Q Have you reviewed other tobacco companies' documents in connection with preparation of your expert testimony?
A Not that I'm aware of.
Q So you haven't looked at any other company's documents on the Internet, for example?
A Well, I have, but I guess I wasn't considering it as part of preparation for this

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testimony.
Q All right. Well, leaving aside then the qualifier of preparation for this testimony, you've
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looked at other companies' documents on the Internet?
A Yes.
Q Do you recall any specific reason you looked at those documents?
A Well, lots of reasons. I mean, recently I've been reviewing PM's Web site to see what they're doing with their ingredients. I've also reviewed other companies' Web sites to look at what sort of programs they have, what sort of information they have developed about some of their products, particularly in the safety and regulatory area, just to see what sort of testing they may have done, along that line.
Q Do you interact with any scientists at other tobacco companies?
A Yes, I do.
Q Can you describe the nature of those interactions?
A The major interactions occur, well, occur through two major mechanisms. One is that there is a committee of representatives from the tobacco industry that look at the issue of ingredients, and it was part of making the joint submission to HHS on ingredients, and we meet two or three times a year, so on those occasions we get together.
Most of us are members of the Society of
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Toxicology, and there's an annual meeting that happens every year, and so we usually all show up in the same place, in the same city, at least, and then just walking around, you run into each other.
And there are some other industry related activities that occur where industry members get together to address issues of a common nature to us, mostly along the lines of ingredients that I'm involved in. There's a group that meets internationally as well to deal with international ingredient related issues, and sometimes we interact on that basis.
There have been one or two meetings with public authorities like HHS. We've had an industry meeting with them recently and talked on that basis, and if we're dealing with requests from, let's say, Office of Smoking and Health to provide certain types of information, sometimes we'll discuss those things in conference calls.
Q Can you recall the subject areas of any interaction you've had with other tobacco company scientists other than those pertaining to ingredients?
A Not specifically. Well, there's another one too, is when there's been a couple of public meetings of the IOM committee, and on two occasions people have attended those from different tobacco companies, and so
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I think I may have had discussions with some of them about the nature of the committee, their task, and just generally about the committee's activities and what they're doing.

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Q What's the IOM committee?
A This is the -- I had already mentioned them -- the Institute of Medicine. It's the committee to assess the science base for tobacco harm reduction. The IOM is a subfunction of the National Academy of Sciences, sort of the medical arm of the National Academy of Sciences.
Q Do you recall the names of any of the other tobacco company scientists with whom you've interacted on these issues you just described?
A Some of them, yes. On the IOM, I think Dan Heck was there, Don DeBothesi from RJR, Rick Salono from PM. Those are the names that immediately come to my mind. Bob Suber from RJR. I saw him at a meeting recently.
Q Do you have children, Dr. Appleton?
A Yes.
Q How old are they?
A My daughter's 16. My son's 13.
Q Have you discussed issues relating to smoking and health with them?
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A Yes.
Q What have you told them?
A I told them that smoking is risky, and that -- they're both athletes, they engage in athletics, and that if they want to maintain optimum performance, they ought not smoke.
Q I take it they don't smoke?
A No.
Q Have you reviewed the opinion which came down a few months ago from the U.S. Supreme Court which was entitled FDA versus Brown & Williamson?
A I haven't reviewed the document itself, but I've read, you know, the press material related to it.
Q In that opinion, the Supreme Court stated that, and I'll quote, One of the most troubling public health problems facing our nation today is the thousands of premature deaths that occur every year because of tobacco use, end of the quote. Do you agree with that statement?
A Well, I would say that smoking certainly is risky and related to a number of adverse health outcomes, and it is a public health issue. Now, the exact words, I'd have to sort of break it apart and you'd have to ask me if I agreed to each and every -- it was a long statement that had a lot of
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issues in it, but I mean I would, as a general proposition, I would acknowledge that smoking is risky and that it is a public health issue.
Q Do you agree with -- and you agree with the fact that it's a troubling public health issue?
A Well, I mean the word "troubling," it's hard to say, because that's sort of value laden, and I don't know exactly what that means. If I knew what was in the minds of the justices when they used that word, I might agree with it. I just don't know exactly what that means.
Q Do you agree with the statement that thousands of premature deaths have occurred every year

http://legacy.library.ucsf.edu/tid/jzn05a00/pdf Stanford Libraries/tobaccoindustrydocuments.ucsf.edu/docs/qsxd0001

because of tobacco use?
A Well, it may be the case. It's hard to know exactly how many premature deaths may have occurred as a result of tobacco smoking just because of the nature of the way the statistics are compiled and the way these estimates are made.
Q Well, Doctor, there's not a product that comes anywhere near tobacco in terms of death and disease, is there?
MS. FORBES: Objection to the form.
THE WITNESS: I'm not sure how to evaluate that. Certainly tobacco is

associated with a number of diseases. As far as the exact numbers go, it's hard to say. I know a number of lifestyle factors that are thought to be very important such as obesity and lack of exercise or other things like drinking. Now, whether or not they're comparable or not, I think it's very difficult to evaluate, but certainly tobacco smoking is a serious issue and poses health risks that are important for a society to address.
BY MS. McDEVITT:
Q Did you have any involvement in Brown & Williamson's submissions to the FDA regarding the FDA's assertion of jurisdiction to regulate tobacco products?
A Yes, I did.
Q Can you describe that involvement for me?
A Yes. My role was to serve as the coordinator for the technical part of the comments.
Q What did that work involve?
A It involved consulting with the major functions within the company. These are primarily technical and opposed to legal comments that were relevant to the various issues that were raised in the

FDA's proposed rule making, and there were a number of issues that were raised, so for those issues, in order to assemble a response, among other things, I would collect the people or go visit them individually and sit down and discuss the issues with them, get their response and so forth, and ultimately provide sort of a compilation of what our position was or what our response was and provide those materials, work with counsel, provide those materials for them to ultimately appropriate a response to the proposed rule making.
Q Did you rely on any research or studies in preparing Brown & Williamson's technical response to the FDA assertion of jurisdiction?
A Some, yes.
Q Can you describe those studies for me?
MR. DUNNE: I'm going to allow him to answer, but I just want to interpose a Norpennington objection.
You may go ahead and answer.
THE WITNESS: Okay. I personally --
MR. DUNNE: In other words, the Court has court has already ruled that you can go

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into Norpennington, and he'll reserve for trial whether or not he's going to allow it to be admissible.

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MS. McDEVITT: That's right.

MR. DUNNE: Go ahead.

THE WITNESS: I personally reviewed a lot of external literature and internal literature, both BATCo documents, Brown & Williamson documents, as well as external literature that was relevant to a number of those areas, so research that had been already out there, either externally or internally, I reviewed, and others had reviewed various types of information pertaining to various topics that were raised and addressed within the response.

BY MS. McDEVITT:

Q How long did it take you to prepare your portion of the response to the FDA assertion of jurisdiction?

A It probably covered a period of about four or five months, I mean from beginning to end.

Q What percentage of your time did you spend on that project during those four or five months?

A Probably about 50 or 60 percent of my time. You know, it varied depending upon what stage of the project it was in. There's varying levels of intensity, but overall on average I'd guess I'd say

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about 50 or 60 percent.

Q How many other individuals at Brown & Williamson were working on your aspect of the project?

A I can't give you an exact number, but I'd say probably about, I don't know, eight or nine people perhaps.

Q Have you submitted any other information to government bodies on behalf of Brown & Williamson?

A Yes.

Q What types of information have you submitted?

A Well, I'm thinking on one occasion the EPA issued proposed guidelines. It was the second draft for risk assessment, and I think we provided some comments for that.

We have made submissions to this IOM committee, which I don't know if they're a government agency, but I guess quasi-government commissioned activity.

We have made -- every year we make a submission to the Office of Smoking and Health, Health and Human Services, to fullfil our obligation for ingredient disclosure.

We have recently made, I don't know if I'd call it a submission, but in essence, it is. The state

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of Texas requires disclosure of ingredient information as well. In that case it wasn't physically handing over documents, but rather making information available through a secured Web site, and so that has been done.

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On occasion the Office of Smoking and Health requests various types of information from us, and I have provided that information, sent them the information with a cover letter.

Q What types of information other than ingredients does the Office of Smoking and Health request from you?

A On one occasion they asked for our analytical methods for measuring various types of ingredients in tobacco products, and we provided that. Other than that, really it's pretty much ingredient related information, but it's various types of things though, so we've provided those submissions when requested.

Q In your opinion, should the government regulate tobacco products differently than it currently does?

A I think there's opportunity for regulation. The concern of smoking amongst youth I think is important, and I think that it would be important for government to focus on that issue and take reasonable measures to assure that youth doesn't get inappropriate

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access to tobacco products, but I don't think the government should restrict adults' access to tobacco products.

Q What in your opinion would be appropriate measures to restrict youth access to tobacco products?

MR. DUNNE: I'm going to let him answer, but overly broad, object.

Go ahead.

THE WITNESS: Well, I haven't really spent a lot of time thinking about it, so I don't know if I could give you a detailed response.

I think it would be appropriate to look at the advertising to see if it seems to be focused on youth. I think that ingredient statements on packages is reasonable, review of ingredients used in products.

I really, I mean I haven't really spent much time thinking about it, so I mean I could say something here that I might find I disagree with 10 minutes later, since I haven't really given it a detailed analysis, but just generally whatever is felt appropriate to restrict

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youth access, as long as, as I said, it doesn't restrict adults' access to tobacco products.

BY MS. McDEVITT:

Q In your opinion, do you believe that ingredients should be regulated by the government in a way that's different from their current regulation?

A I think something comparable to what the FDA does with foods would be reasonable, to review ingredients to assure that they're not contributing to or increasing the risks already recognized for tobacco smoking. You know, some sort of review process and disclosure of the major ingredients on the pack seems

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reasonable to me.
Q What does the FDA do with respect to food ingredients review?
MR. DUNNE: Object, overly broad.
Go ahead and answer.
THE WITNESS: It depends upon the nature of the ingredient. If it's a prior sanctioned ingredient or if it's GRAS, the company can use the material if they or if some agent for them deems the material to be generally recognized as safe.
Of course, the FDA always has the

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prerogative to disagreeing with a GRAS affirmation. If it's not GRAS or prior sanctioned, they can file a petition for premarket approval where they can submit data in support of the accepted believed ingredient. The FDA can review the data and make a determination if it's sufficient, or if not, what needs to be done to supplement it. Then they grant usage through a premarket approval process.
Once the material is deemed acceptable, either through a prior sanction or GRAS or premarket approval, then companies are free to use it, and it may have certain restrictions, depending upon again the class of the ingredient, or it may, the only restriction may be to use consistent with good manufacturing practices.
Ingredients that are added intentionally to achieve a technical effect, with certain exclusions, are required to be listed on the ingredient package, and there are provisions for not having to declare everything on the ingredient package they have spelled out in FDA regulations. I

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mean, in a nutshell, something along that line.
BY MS. McDEVITT:
Q I take it that none of the procedures and regulations you just described are employed by the government with respect to tobacco ingredients?
A Well, the government does have a process in place where they have access to all the ingredients added to tobacco, and so they have access to that information.
Now, there isn't a premarket approval process. It's a notification process. Every year they get a list of ingredients, and they've also asked for information that goes above and beyond what they're allowed to ask for legally, but nevertheless, we have provided that information when requested.
So the government currently has access to information, and I presume they're doing whatever they feel is appropriate to do with that information as far as review or raising any concerns or issues they may have with it. They haven't raised any so far, but they certainly have access to the information.

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Q They haven't raised any with you or they haven't raised any to your knowledge with respect to any other tobacco company?

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A They haven't raised any with us or to my knowledge with any other tobacco company.

Q Do you believe in your opinion that the manufacturing process of cigarettes should be regulated by the government?

A Well, to the extent that the manufacturing process is regulated in other consumer products industries, it seems reasonable. I mean, it depends on what kind of regulation you're talking about, but we're talking in very general terms right now.

Q What about with respect to cigarette parameters? That's a more specific term. Do you believe that there should be some government regulation different than what currently exists?

MS. FORBES: Object to the form.

MR. DUNNE: Object, overly broad.

THE WITNESS: Well, I don't know what cigarette parameters you're talking about and what type of regulation you're talking about. I mean, I would fall back to my original response, which is I would not be in favor of anything that's going to limit adults' access to tobacco products.

I mean, I personally believe if a person wants to smoke a cigar or a pipe

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or a cigarette, even if it's a nonfiltered cigarette, they should be able to have access to it, providing they're aware of whatever risks that it may pose, so I wouldn't think it would be appropriate for the government to say a cigarette has to fit X, Y and Z parameters and no one can simply legally have access to anything other than that. But again, we're talking generalities.

BY MS. McDEVITT:

Q Do you believe that Brown & Williamson should accept some form of government regulation different than it currently operates under?

MR. DUNNE: Object, overly broad.

Go ahead.

THE WITNESS: Well, I think I've already responded to that question in certain areas that you've mentioned, and in some cases, additional regulation seems reasonable to me, and it depends upon what the regulation is and how extensive it is and what its purpose and focus is, but I think there's some room for additional regulation, you know, consistent with my

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previous responses.

BY MS. McDEVITT:

Q Doctor, what are the benefits of smoking?

A Well, I'd say probably the main benefit is

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that people enjoy it, and so if it brings enjoyment or pleasure in some way, that's a benefit in my view. It might not be in somebody else's view.

Q Do you smoke?

A No.

Q Did you ever smoke?

A Yes.

Q When?

A Well, since I was young I've sort of occasionally smoked here and there. Probably about five or six years ago I started smoking more regularly, probably got up to about a pack a day. It was associated with a change in position within Brown & Williamson. I moved into a manufacturing position and had pretty much unlimited access to cigarettes at that time. For about a year I smoked pretty regularly. Then I quit.

Q How many packs a day did you smoke when you were smoking regularly?

A Probably the most I smoked was about a pack a day, and that's maybe for about a year.

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Q Did you have any trouble quitting?

A Yes and no. I mean, you know, I had a craving for a couple of days, maybe a couple of weeks afterwards, but after about two weeks or so, it wasn't any problem for me. I haven't smoked since, and that was probably about five or six years ago.

Q Why did you decide to quit?

A A variety of reasons. The main reason, I just felt that -- I was concerned that people would look down on me if I smoked. It was becoming sort of -- I felt it was a social stigmatization. I had some concerns about health related issues, although I wasn't feeling bad or anything, but I would say the major reason was the social, I felt there was social pressure and that people might look down on me if I was a smoker.

Q Now, you've done a thorough review of scientific information available regarding the health consequences of smoking, right?

A Yes.

Q And you regularly review this literature; is that correct?

A Yes.

Q How is that review accomplished? Do you receive updates or do you do your own literature

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searches?

A I have a variety of ways and mechanisms and sources of getting access to information. Our library has dozens of journals that deal with various issues related to smoking and health and the different fields within that, you know, epidemiology, pathology and statistics, et cetera, toxicology. They bring things to my attention.

We have a service that compiles all this information and compiles abstracts and provides them to us. We do various searches.

The media is always raising issues. It's very common for an investigator, if they have a

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significant finding in a smoking related area, for that to become publicized for various reasons, and when issues like that hit the media, we immediately do an indepth search in that area.

We have pretty large network actually of people who are associated with smoking and health issues among the various companies within the B.A.T. family, mostly from Southampton, from BATCo, and we frequently communicate by e-mail or phone on various issues, so if a significant finding emerges, someone might give us a call and say have you seen paper X, Y, Z, have a look at it. Through all kinds of ways.

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Q What percentage of your time is devoted to your literature review on smoking and health issues?

A It depends on the time, of course. I mean, it goes up and down as it goes and swings. I would say maybe, I don't know, maybe 15 percent of my time total, 15 to 20 percent perhaps, but at certain periods it can be a lot more than that.

Q Now, I take --

A But I mean if I spread it out over a year's time, I mean.

Q Now, I take it you have a mechanism for communicating the results of your literature review to others at Brown & Williamson, right?

A Right.

Q How do you do that?

A Mostly verbally. Sometimes by e-mail, but it's mostly verbal. If there's a significant finding and someone's interested in it, I might pick the phone up and call them. They might call me and ask me what I know about it, have I seen it, what are my views.

Q All right. So there's not a policy or procedure in place by which you communicate the results of your literature review to others at Brown & Williamson?

A No.

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Q No formal mechanism?

A No.

Q Does cigarette smoking cause lung cancer?

A Well, it's a judgment call based on the weighting of a lot of evidence, but we feel the best judgment is that it does contribute to lung cancer.

Q What's the basis for your judgment that it does contribute to lung cancer?

A Primarily the body of epidemiological literature that's available, the strength of the associations identified in most, not all, but most major epidemiological studies, the consistency of that association, the lack of alternative explanation for it. It's primarily putting a large weighting or emphasis on the epidemiology literature.

Q Can you describe epidemiology?

A Sure. What epidemiology does is attempts to discover factors that are associated with human disease by various methods looking at the human population. One could compare two groups of people, for example, a group of people that are in a particular activity, let's say, like a particular occupation, or that may

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engage in a particular lifestyle like smoking or drinking or obesity, and follow them through time compared to another reference group, which would be a

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control group, and simply wait and see who gets ill or who dies and compare the numbers of those occurrences in the two groups and determine if there's a difference in the number of incidence or prevalence and determine if there's any differences between those groups in terms of lifestyles or exposures or occupation or anything else to see if those various differences correlate with the differences in incidence. That would be one way to go about it.

Another way to go about it could be if you're interested in a particular disease, let's say lung cancer, you could engage the assistance of various medical centers where people are going to go to be treated, identify lung cancer patients and follow them and look at them compared to again another reference group that doesn't have the disease, and then survey the two groups and ask them various questions about various aspects of their life.

It could be exposure to various things, engaging in various occupations. It could be asking about exercise, smoking habits, drinking habits, what kind of diet they eat, any number of things, and then see if there's a higher percentage of people in the two different populations that engage or don't engage in various activities to see if there's a correlation

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between one of those factors and the occurrence of disease.

And there's other techniques used as well. Those are the two major techniques that I've described, but there's other methods used, but it's basically looking at people, the incidence of disease, and looking at different -- what you know about their lifestyles and behaviors and seeing if those correlations emerge.

Q So I take it that epidemiology is a field of science; is that correct?

A One could regard it as a field of -- it's certainly a field of investigation, in that you're trying to discover something that isn't otherwise known, and I would regard it as a field of science.

Q Do you consider yourself to be an expert in the field of epidemiology?

A I consider myself very familiar with epidemiology because I've read hundreds, probably thousands of papers in the area, but I have not conducted actual epidemiological studies or designed and executed epidemiological studies. I'm not sure what exactly constitutes an expert. I consider myself very knowledgeable in the area.

Q You haven't undergone any formal training in

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epidemiological research, have you?

A Well, epidemiological research has been part of the course content in my overall training as a toxicologist, and I've taken two graduate level

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statistics courses. Epidemiology relies very, very much on statistics, so I'm familiar with statistics and methodology, but I haven't taken any formal epidemiology courses per se.

Q You earlier testified that in your judgment, that cigarette smoking does contribute to lung cancer.

A That's correct.

Q But you won't go so far as to say that it causes lung cancer; is that correct?

A Well, it depends on what you mean by causes lung cancer. The reason why I use the word "contribute" is because if I use the word "cause," it could leave the impression that it's the only thing that's been associated with lung cancer or that if you smoke, you absolutely will get lung cancer.

With lung cancer there's many things that have been associated with it, such as occupational exposures, air pollution, your genetic makeup, even high fat diets, so I don't think anyone knows exactly all the things that may play a role in the development of lung cancer, and certainly smoking is associated

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with it as well, so the reason why I say the word "contributes" is because I believe that there are many things that are associated with lung cancer and that could be playing a role, depending upon one's background and exposure and lifestyle, so I use the word to make the distinction that it isn't necessarily that if you smoke, you will get lung cancer, because most people who smoke don't get it, or that it's necessary to cause lung cancer, because many people who don't smoke do get lung cancer. When I use the word "contribute," that's what I'm really trying to do is make that distinction, so that the word "cause" may appear to sound like there's more -- like it's necessary and/or required, which it isn't.

Q But it's true, is it not, that a vast body of epidemiological research has pointed to the fact that -- or has drawn conclusions that cigarette smoking causes lung cancer?

A Well, there's a vast body of epidemiological research which has shown a strong and consistent association between consumption of cigarettes and development of lung cancer. That same research has also shown that many people who smoke don't get lung cancer and that many people who don't smoke do get lung cancer, so it certainly appears that cigarette smoking

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is contributing.

Now, if you define "cause" that way, then I would say yes, it causes it, if that's what you mean by that. I'm not exactly sure what's meant when people hear the word "cause." To me, and I may be wrong, I think people assume that it will always be the case that if you smoke, you'll get lung cancer and that smoking is the only thing that contributes to lung cancer, and I don't believe that's the case, so I'm only trying to draw that distinction. I'm not trying to deny that smoking is playing a role in lung cancer.

Q What type of evidence would you need to be able to testify that smoking causes lung cancer?

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MS. FORBES: Object to the form.
THE WITNESS: Well, if it's based on epidemiology only, it depends on what, you know, how one looks at it and what perspective they're looking at it from.
If you're in the perspective of a public health authority deciding whether or not to warn the public or develop public health policy, it may be that epidemiological evidence alone is what you need, and if that's what you're satisfied with, then the epidemiological evidence

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itself is sufficient in my view.
On the other hand, if you're in a position of trying to determine, for example, if a particular individual, if a particular individual is ill and they smoke cigarettes and you're trying to determine if cigarettes was the cause of that illness, I don't think we can say that now. I don't think that science allows us to make that determination.
I suppose what evidence would be needed in an example like that would be something that specifically links smoke or smoking to their disease at the molecular level, maybe such as a particular mutation in a gene that's known to predispose or produce lung cancer that can only be caused in a constituent that only is found in cigarette smoke and not some other environmental exposure, maybe something along that line.
BY MS. McDEVITT:
Q Are you aware of any evidence which would be consistent with the example you just gave me?
A No.

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MS. FORBES: Object to the form.
BY MS. McDEVITT:
Q So if I understand your testimony correctly, from a public health perspective Brown & Williamson believes that smoking causes lung cancer; is that right?
A No. Well, let me just state what our position is. There's two types of evidence that you can look at. You can look broadly at the experimental evidence or you can look at the observational, which is the epidemiological evidence, and you can place greater or lesser degree of reliance or weight on those two types of evidence.
If you look at the epidemiological evidence and if you place a great degree of emphasis on that evidence, that evidence to me is pretty clear. It indicates that smoking is contributing to lung cancer, and we agree with that. And if your overall judgment is that that is probably the best evidence to look at from a public health ground, then we think that's the best judgment.
Q For how long have you believed that it's been

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pretty clear that the observational or epidemiological evidence supports the finding that smoking causes lung cancer?

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A Well, I mean, our view of the evidence has been an evolving process, so I can't, you know, point to a date and say before this day we felt this, but after this day we felt that.

There are certain defining moments in time, and I would say when we launched our Web site and began having a direct and consistent communication with the public, that certainly marked a point in time when we posted our positions on the B&W Web site, but I can't say that that defines when we felt a certain way. As I said, it's been an evolving process, and so I can't really sort of time stamp it.

Q All right. Well, let's try it in terms of rough dates then. Do you believe that it was pretty clear that the observational or epidemiological evidence supported a conclusion that smoking caused lung cancer at some point during the 1980's?

MS. FORBES: Object to the form.

THE WITNESS: Well, in the 1980's I think our view was that smoking is risky, it's a risk factor and it may cause disease, primarily on the epidemiological evidence, but I think at that point we were still looking more to the experimental evidence, because as a manufacturer of cigarettes,

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that's what we look to, because that's where we're going to get our guidance on trying to reserve the issue, ultimately trying to fix the problem by making a safer cigarette, so in the '80's, I would say we were probably placing greater weight on the experimental evidence than on the observational, although we recognized the observational evidence and what it said.

BY MS. McDEVITT:

Q Were there any significant changes in the observational or epidemiological evidence between the beginning of the 1980's and now, any significant developments that would have led to a shift in the position that smoking causes lung cancer?

MR. DUNNE: Objection, vague.

THE WITNESS: Not really. I would say the major difference leading to an evolution of our opinion is the degree of emphasis we've placed on the observational evidence, placing greater emphasis on that than the experimental evidence.

BY MS. McDEVITT:

Q And why has there been a shift in placing a greater emphasis on the observational evidence as

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opposed to the experimental?

A Well, in the '80's we didn't really discuss this issue with the public. We didn't really communicate consistently and directly with the public.

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Our views were pretty much internally driven. Our views were driven by what does the evidence say in terms of what can we do to modify our product to address the issue, and when you look at that evidence, you say, well, what constituents can we remove. Well, we don't know, and the scientific community apparently doesn't know either. What cigarette design change can we make to fix the problem. Well, we don't know, and nor does the scientific community.

So we look strongly to the experimental evidence, and also if someone says that they know that a particular person's disease was caused by cigarettes, we would look at the evidence and say how would they know that from the experimental evidence point of view. Epidemiology can't tell you that.

So we were really looking at the issue from an internal, I'd say internal focus issue of what we could say. We were dealing with regulatory issues like FTC hearings and other hearings that were going on or allegations that were being made during litigation, but weren't really communicating with the public.

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In the mid '90's that all changed, particularly with the Waxman hearings and the litigation that was launched at that time, and at that point we felt that people were mischaracterizing our position. Although we weren't speaking to the public directly, other people were speaking for us, and in our view, mischaracterizing what our views were. They were says we just flat deny there's anything, any issue to be addressed that smoking is playing any role whatsoever, and we don't think that was our position. We felt it was being mischaracterized and felt a need to communicate directly with the public.

There was also the possibility that the FDA may regulate us, so we were in anticipation of possible dialogue with the FDA or other regulatory agencies, and realized that as long as they felt that we were denying any role, which we weren't, then that would be a basic block to having any kind of meaningful dialogue.

So in anticipation of communicating directly to the public through the Internet, we felt it was appropriate to place a greater emphasis on the epidemiology to make sure and clear that when we did communicate, we weren't trying to deny any role of tobacco or that we weren't trying to fool the public into thinking there wasn't a problem, which was another

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allegation that we were facing repeatedly, and that probably was the major time and the major reason why we began placing greater emphasis on the epidemiological evidence is in anticipation of having direct and consistent communication with the public and anticipation of discussions with regulatory agencies.

Q At what point in time did the conclusions of the epidemiology relating to smoking and health cease to be in controversy?

MR. DUNNE: Object.

MS. FORBES: Object to the form.

MR. DUNNE: Form.

THE WITNESS: For who?

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BY MS. McDEVITT:
Q For you.
A As I said, it's been an evolving process, so I can't point to a particular point in time. We've been reviewing the evidence and forming our views just as the external scientific community has for decades, and as I said, we've acknowledged that smoking is risky for decades, acknowledging that the association exists, so I can't point to an exact time.
The only thing I can do is point to certain benchmark events which occurred, one of which was our commissioning of our Web site, and then anticipating

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prior to that we're going to begin having direct and consistent communication and dialogue with the public.
Q The commissioning of the Web site is quite recent, and you earlier testified that at least beginning in the 1980's that nothing much has changed in the epidemiology between then and now.
At what -- and I'm going to ask the same question again. At what point in time did you believe that the epidemiology with respect to smoking and health ceased to be in controversy?
MS. FORBES: Object to the form.
THE WITNESS: I wouldn't characterize it as a belief or not. I would characterize it more as an evolution of emphasis, placing greater emphasis on the epidemiological literature relative to the experimental literature. The experimental literature is still there and the issues and the information gaps are still there and the epidemiology is still there, so it really hasn't changed.
What's changed really is our perspective of focusing more on the epidemiology, and I would say probably the time frame that would define that would

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be in anticipation of having direct communication with the public.
BY MS. McDEVITT:
Q I want to look, let's look at the epidemiology in isolation, not on a comparative basis with the experimental science. At what point in time did the epidemiology with respect to smoking and health cease to be in controversy in your opinion?
MR. DUNNE: Object to the form.
THE WITNESS: As I said, we began to place greater emphasis on the epidemiological literature around the time that we were anticipating having direct dialogue with the public.
BY MS. McDEVITT:
Q Was the epidemiology with respect to smoking and health a subject of controversy in 1964?
MS. FORBES: Object to the form.
THE WITNESS: In 1964 I don't know if you'd call it a subject of controversy. At that point certainly the surgeon general's advisory committee had reviewed

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the evidence, had looked at literature and come to a conclusion, but still at that point I know that there were scientifics

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and investigators who felt that the conclusion was tentative perhaps or didn't necessarily agree or felt that there were more issues to be answered, that it might not necessarily be a closed book, so I don't know when a controversy ceases to exist or not or what the test for that is, but certainly in 1964 that was a defining moment as well in that you had the surgeon general's advisory committee issue their report, but I've also seen papers and literature where people question that or there was some doubt at that particular time point.

BY MS. McDEVITT:

Q What about in 1974, do you believe that people, scientists, epidemiologists were questioning the conclusions of the epidemiology --

MR. DUNNE: Object.

BY MS. McDEVITT:

Q -- on smoking and health?

MR. DUNNE: Object, overly broad.

THE WITNESS: I would say by 1974 certainly there were less people questioning it than in 1964, and I think that, you know, again it's an evolving

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process, so it's kind of hard to pinpoint and say, well, at this point yes or that point no, and again, there were certain defining moments and benchmarks.

In 1974 -- well, I know in 1979 a major review had been conducted by the surgeon general's advisory committee, which I would say is another defining moment. All I can really say is that there's probably less views from the scientific community that there were some questions about the epidemiology in '74 than there were in '64.

BY MS. McDEVITT:

Q All right. So sitting here today, you can't tell me when the conclusions of the epidemiology with respect to smoking and health ceased to be controversial in your view?

MS. FORBES: Object to the form.

THE WITNESS: Well, I gave you the answer that I gave you, which is that it's been an evolving process. There have been defining moments. 1964 certainly was a defining moment in that at that point the surgeon general's advisory

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committee drew their conclusions. At that point I wouldn't say there's unanimous agreement or 100 percent agreement. There were some people who questioned that, but

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as time proceeded, more studies were done. The evidence became more and more and more consistent and more and more strong, and less and less people had questions or doubts, but I can't put my finger on a date and say this is when controversy ended and unanimous consensus began. I don't believe that that happened. I think it's been an evolving process, other than, like I said, I can sort of, you know, time stamp various critical events basically tracking the surgeon general's reports, and those represent benchmarks in time when various views were taken, committees were assembled and opinions were rendered.

BY MS. McDEVITT:

Q Do you believe that the conclusions set forth in the 1964 surgeon general's report reflected the consensus of the scientific community?

MS. FORBES: Object to the form.

MR. DUNNE: Object, vague and

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ambiguous.

THE WITNESS: Well, they certainly did of the community and they may have of the scientific community. I don't really have a way to know if they reflected the consensus or not. I'm not sure how to identify that really, but I would say at that point, I would say probably a majority of the scientific community felt that way, but I'm not really sure. I haven't really undertaken an analysis to try to ascertain that. I've seen papers where people have questioned it. I've seen papers where people agreed with it. I mean, I think that's the best I can say.

MR. DUNNE: We've been going about an hour and 25 minutes. Whenever --

MS. McDEVITT: That's fine. We'll take one right now.

(A recess was taken.)

BY MS. McDEVITT:

Q Doctor, you testified earlier that you had made some changes to your expert reports over time; is that right?

A Yes.

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Q And you testified that one of the areas as to which you made changes dealt with the issue of causation generally?

A That's correct.

Q And for what reason were those changes implemented?

MR. DUNNE: Object, asked and answered. You can go ahead.

THE WITNESS: Well, it was to reflect our change in emphasis on how we evaluate the existing literature.

BY MS. McDEVITT:

Q Your change in emphasis as it's currently

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reflected on the Brown & Williamson Web site?
A That's correct.
Q Did you play a role in formulating the position set forth on the Brown & Williamson Web site with respect to causation?
A Yes.
Q What role did you play?
A Well, as director of scientific and regulatory affairs, I'm a senior scientist within the company, and when a decision was made to begin communicating our positions, I was consulted by the company as to what our views were.

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Q Were you involved in the decision to begin communicating Brown & Williamson's positions through the Web site?
A No.
Q Who was involved in that decision, if you know?
A I don't know everyone who was involved. I assume our senior counsel was involved, but I don't know who else was involved in those discussions.
Q Were there any scientists involved in those discussions?
A In the decision to communicate?
Q That's right.
A Not to my knowledge, but I don't know.
Q Any other individuals other than lawyers involved in those, in that decision to your knowledge?
A I really don't know.
Q All right.
A Since I wasn't involved in it.
Q All right. But once the decision was made, you then in your position as director of scientific and regulatory affairs were consulted, and what information did you provide in connection with that consultation?
A A view as to what I think would be an appropriate position.

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Q What were you asked specifically?
A To consider what our positions would be, well just inform that we're considering communicating directly with the public on various issues covering general smoking and health, addiction, environmental tobacco smoke ingredients, and what would be appropriate things to, views to express on those various areas.
Q And with respect to causation specifically, what did you -- how did you answer the question?
MR. DUNNE: Object. What question?
BY MS. McDEVITT:
Q The question as to what would be appropriate views to express on the Brown & Williamson Web site?
A Well, again, I was concerned that our position had been mischaracterized, so that was one issue that I was concerned about dealing with as a general issue, that our position was being set for us.
I was also concerned with accusations that we deny causation or any role at all, depending upon who is mischaracterizing us and to what extent.
I was also concerned that anything we say,

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someone may try to claim we're trying to downplay the risks or convince the public there isn't an issue really, because I was very familiar with those

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accusations, which I had repeatedly encountered.

That there is a large body of science, that because no one really knows the mechanisms of these diseases, ultimately a judgment has to be made. You have to look at the totality of science. You have to weigh various aspects of it, draw a judgment, and that I felt that overall that it would be appropriate to place greater emphasis on the epidemiological evidence, and in that case, the judgment, the best judgment would be that smoking is contributing to disease.

Q So that was the recommendation that you made to the individuals who consulted you --

A Yes.

Q -- about what information to provide on the Web site? Did you draft the statement on causation that appears on the Brown & Williamson Web site?

A Not the statement as it appears. I did some initial drafts.

Q You did some initial drafts of the statement on causation?

A Right.

Q And they were reviewed by others within the company?

A Yes.

Q Who reviewed those drafts?

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A I don't know everyone who reviewed them, but a number of scientists within R&D reviewed them. Sharon Boyse reviewed them. I believe our senior counsel reviewed them, but I'm not sure who all else. I don't know who gave everything to who, so I can't say everybody, but those are people that I had direct contact with, and so I'm aware that they had a role in it or participated in it.

Q When you made your recommendation as to your judgment that a greater emphasis be put on the epidemiological evidence, did you encounter any dispute from those within, people within the company?

MR. DUNNE: Object, argumentative to the word "dispute."

Go ahead and answer.

BY MS. McDEVITT:

Q Did anyone disagree with you or comment on your --

MR. DUNNE: Now it's compound.

BY MS. McDEVITT:

Q Did anyone disagree with you?

A No.

Q Did anyone comment on --

A There were comments of just, you know, making sure that whatever we said was clear and not something

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that could be subject to being misconstrued or distorted or misunderstood. There were questions about clarity and so forth. Other than that though, there was no disagreement or resistance or anything like

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that.
Q At what point in time did you personally believe that the better judgment would be to place more emphasis on the epidemiological evidence that smoking causes cancer?
A Well, again, it's similar to my answer before, which is it's an evolving process. I can't pinpoint a time. I guess the example that I use is that at one point I wasn't concerned about teenagers driving. Now I am, and I don't know when that happened. It's sort of an evolving thing.
I have, since I guess I've been giving testimony have recognized and acknowledged the epidemiological evidence and have acknowledged the risks and that if you base your assessment solely on epidemiology, then that's sufficient to draw that conclusion, but again, I can't time stamp it, and the best I think I could do would be to say that in anticipation of communication to the public was probably the best way to identify a time when I felt it was appropriate to, in those communications, place
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greater emphasis on the observational evidence and on the experimental evidence.
Q You don't recall who asked you for your, who at Brown & Williamson asked you for your recommendation as to the content --
A My --
MR. DUNNE: Wait. Let her finish the question.
THE WITNESS: I'm sorry.
MR. DUNNE: Go ahead.
BY MS. McDEVITT:
Q We'll strike the question and start again.
A Okay.
Q Do you recall who specifically at Brown & Williamson asked you for your input on the statements that were to eventually be put on this Web site?
A My direct contact was Sharon Boyse.
Q When Ms. Boyse asked you for your input, can you recall in words or substance what she requested specifically?
A Not specifically, just in generality that there's thought being given to posting our views on the B&W Web site, I'd like to discuss, you know, what those positions are, what those views would be, and so we had
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discussions about it.
Q All right. When were you -- when did Ms. Boyse ask you for your views that would eventually be posted on this potential Web site?
A I can't recall an exact date. It seems to me, it probably seems like it's longer ago than it may have been. It seems like it was about two years ago, but I don't really remember exactly when.
Q When you started at Brown & Williamson in 1991, were you of the personal belief that the epidemiology with respect to smoking and health represented sound science?
MR. DUNNE: Object to the form.

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MS. FORBES: Objection.
THE WITNESS: Well, I don't know exactly what you mean by represented sound science. I recognized that the epidemiological evidence was out there, that the data was there, the evidence was there and what it said. I also recognized that if you look at the experimental evidence, that there was a lot of inconsistencies and gaps and uncertainties, so I mean that's the best I can state my understanding of the state of the science.

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BY MS. McDEVITT:

Q Did you have any specific disputes with the methodology employed in the epidemiological studies that existed at that time in 1991?

MR. DUNNE: Object, overly broad. I mean, I think each of them used, many of them used different methodologies.

Go ahead.

THE WITNESS: I recognized the nature of epidemiological investigation. I wouldn't call it disputes. I recognized the way epidemiological studies are carried out, what their strengths of such investigation is, as well as what its limitations are, so I guess what I would say is I recognized the limitations. I wouldn't say I had disputes with it, but I recognized again, you know, the nature of the investigation and what it contributes and what are its uncertainties.

BY MS. McDEVITT:

Q Assuming that the statements that currently appear on the Brown & Williamson Web site with respect to causation are true, would it be your opinion then that cigarettes are an unsafe product?

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MR. DUNNE: I'm going to object, vague and ambiguous, argumentative.

Go ahead.

THE WITNESS: My opinion would be that cigarette smoking carries health risks and that people who smoke may get disease as a result of it. Now, if that is how you would define unsafe, then yes.

I guess if you gave me more particulars about what an unsafe product means, I could be more specific or suffice it to say that I recognize the risks. I do think smoking contributes to certain diseases in people who smoke.

BY MS. McDEVITT:

Q What do you mean by a risk factor? That's a term that's come up a bit in this discussion.

A Well, it could mean different things by different people. As I would understand it, it would mean something that has been associated with the occurrence of disease.

Let's take heart disease for an example.

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There are many risk factors that have been identified and reported for heart disease such as living a stressful lifestyle, having a high fat diet, lack of

exercise, having a family history, maybe genetic makeup, certain types of blood disorders, hypercholesterolemia or hyperlipidemia. These things are associated with high blood pressure and so forth, are associated with a higher incidence of heart disease. They're said to therefore be risk factors. It may be felt that they contribute, maybe not. It depends upon who's looking at the evidence and what their criteria are, but that's how I view a risk factor.

Q Risk factors can be rated; is that correct?

A Well, people can attempt to assign a rating to them using various methods. I don't know what they would use or the validity of that, but anyone can make a decision that they feel one is more stronger than the other. There is not a standard procedure or process for assigning weights to risk factors that I'm aware of, but anyone can undertake such an exercise I guess if they wish to.

Q Information about risk factors, specific risk factors keyed to specific diseases is currently posted on the Brown & Williamson Web site, is it not?

A Could you repeat your question.

Q Information linking risk factors to specific diseases is currently posted on the Brown & Williamson

Web site, is it not?

MR. DUNNE: Object to the form. Do you mean relative risk?

MS. McDEVITT: I'm sorry. I do, yes. Sorry. Yes, that's what I mean. I misspoke. I apologize.

MR. DUNNE: I thought so.

THE WITNESS: Then could you repeat your question, please.

BY MS. McDEVITT:

Q Information keying relative risk to specific diseases is currently posted on the Brown & Williamson Web site, is that true?

A Yes, there is information about that.

Q Did you have any input in the decision to post that information on the Web site?

A Yes.

Q Can you describe the nature of your input?

A It was discussions with Sharon Boyse, and we were discussing -- I think somewhere someone had raised a question, and I don't know if it was internal or external, that although our Web site has information about our views and positions on smoking and disease, that it didn't mention what the relative risks were for various diseases, so it was something that somebody had

pointed out wasn't there, and so we felt that, well, then we ought to put it there, and so we did.

Q When was that decision made? Do you recall?

A Not really. I would probably -- I assume

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within the last two years, but I don't know an exact time.

Q Do you believe that the surgeon general's reports are authoritative?

A Well, if what you mean by authoritative is that a body of people who are viewed to be experts and competent in a range of disciplines that are relevant to smoking and health that have been assembled for the purpose of reviewing the literature and rendering an opinion about what that means, that has been done, and that's what they represent. And if that's what you mean by authoritative, then I would say yes, they're authoritative.

Q So is it your understanding that your company historically has criticized the surgeon general's reports beginning, let's say specifically with 1964?

MR. DUNNE: Object, vague, ambiguous, overly broad, argumentative.

THE WITNESS: My understanding is that when gaps in the information existed, when asked our view or if we offered our

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view, typically in the context of either litigation or a regulatory proceeding, we would express our views if we felt that there were certain gaps in the information or inconsistencies and so forth.

I don't know if that constitutes criticism or not. I would say what we've done is pointed out where uncertainties existed on occasions when we were either asked our views or were submitting our opinions, typically in the context of a regulatory hearing or something along that line, or litigation.

BY MS. McDEVITT:

Q We have been focusing on lung cancer. I'm going to ask you about another series of diseases now.

A Okay.

Q Does cigarette smoking cause heart disease?

A Well, certainly the epidemiological evidence is associated. There is a higher incidence of heart disease among smokers than nonsmokers. The strength of the association isn't nearly as strong as it is for heart disease.

MR. DUNNE: As it is for lung cancer?

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THE WITNESS: No, for heart disease as it is for lung cancer. The consistency of the association also isn't as consistent, and with heart disease there are a large number of other factors associated with it that appear to be fairly strongly associated with it, even more so than smoking; however, I would say that there's sufficient epidemiological evidence to conclude that smoking is probably playing a role or contributing to heart disease as well, but the type and the nature of the evidence isn't the same as it is for lung cancer.

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BY MS. McDEVITT:
Q Does cigarette smoking cause emphysema?
A Again, to provide detail to my response, there is a lot of epidemiological evidence linking smoking to emphysema. In the case of emphysema, the strength of the association is pretty strong. It's comparable to lung cancer and pretty consistent, so I would say that based on that, the epidemiological evidence, the best judgment is that cigarette smoking contributes to emphysema.
Q Are there any other diseases as to which the epidemiological evidence links smoking?

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MS. FORBES: Objection to form.
THE WITNESS: I'm not sure if my counsel heard the question.
MR. DUNNE: If somebody objected to form, that's good enough for me. I didn't understand the question or I'm not sure I heard it.
THE WITNESS: Would you repeat the question, please.

BY MS. McDEVITT:
Q Are there any other diseases as to which the epidemiological evidence links smoking as a cause?
MS. FORBES: Objection to form.
THE WITNESS: There are several diseases, certain malignancies, cardiovascular diseases for which there is epidemiological evidence showing an association. It varies in terms of strength and consistency. Those are all summarized pretty well in the 1989 surgeon general's report as well as on our Web site.

BY MS. McDEVITT:
Q Do you have an opinion as to specifically what the causal connection is between smoking and lung

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cancer?
A Not really. One would think logically there must be something in cigarette smoke that's contributing or playing a role. Assuming that the connection is just beyond simply association, which we think the best judgment is that it is, but not really. It's something that I don't think is known or there's a general agreement within the scientific community about that at this point.
Q Are there any other types of cancer about which scientists have been able to actually pinpoint a cause?
MR. DUNNE: I'm sorry. Could I have that read back? I beg your pardon.
(The record was read by the reporter.)
THE WITNESS: There are a couple of mostly in occupational setting cancers that are thought to be uniquely related to a particular exposure, mesothelioma in the case of asbestos exposure, I believe hemangiosarcoma in the case of vinyl chloride exposure. I think there's some

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literature linking the possibility of hepatocarcinogenesis with aflatoxin exposure. I'm not so sure where that

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literature is now, because I haven't followed it in a while. There are certain other lung cancers associated with other occupational exposures, mostly to metals and dusts of various sorts that are sort of unique to those exposures.

I'm not sure if that's really getting at what you're asking or not.

BY MS. McDEVITT:

Q You're familiar with the Center for Disease Control report that says that nearly half a million deaths in the United States are caused by smoking?

A I don't know the specific report, but I'm familiar with that statement that's been generated from the CDC, yes.

Q Do you believe that to be an accurate statement?

A Well, I don't know how anyone can really come up with an accurate number of how many people become ill as a result of smoking and how many people may ultimately die as a result of it. The numbers are estimates based on assumptions, a variety of assumptions that have to be made in order to compile such an estimate, so there is a lot of uncertainty that goes into any estimate like that, so there's just no

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way in my view anyone can say this is an exact number. The best that can be done is estimates made. People can question the assumptions going into those estimates and the validity of those assumptions.

So I recognize the number's been made and know generally how they arrived at it, but I really can't say if that number's valid or not. I don't know how you'd go about validating it.

Q Do you question the assumptions used by the CDC in arriving at that number?

A I'm not familiar with the intimate details of how they've arrived at that number, so I'd have to really review exactly what their methodology is.

The issues that I would need to look at is what diseases, first of all, they selected to be ones that are assigned to smoking and then what relative risks they assigned to that, and if they included diseases, for example, that had very low relative risks or maybe not even statistically significant or not, and I'm not really familiar with the intimate details of what they've done, but it's those kind of issues that I would need to look at, so at this point I really can't say if I agree with their question or not. I'm just generally aware of how these numbers are conducted and just reserve I guess my answer ultimately with having

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to look at exactly what they've done before I could give a more specific answer.

Q Leaving aside your testimony that the statistics in arriving at a number like the one we

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talked about from the CDC are inherently speculative, do you believe that there are any deaths caused by cigarette smoking?

MS. FORBES: Object to the form.

THE WITNESS: I assume that that's the case based on the judgment that smoking is linked to disease.

BY MS. McDEVITT:

Q Based on any other factors?

A That's primarily it.

Q Is Brown & Williamson making any effort to investigate lung cancer specifically?

MR. DUNNE: Object to the form. I'm sorry. Did you finish?

MS. McDEVITT: Yes.

MR. DUNNE: Overly broad.

Go ahead.

THE WITNESS: Our research effort really can be described in two different ways. If you're talking about investigating the fundamental science of lung cancer, we

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do not directly engage or have not directly engaged in the fundamental science of lung cancer. What we felt is the best way to approach that is to provide funds to an independent organization. Historically it's been the CTR, and we also have an internal, within the B.A.T. family of companies we have an internal process for funding research.

And the reason why we believe that doing that is the best way to go is it's comparable to what NIH does. NIH doesn't do direct research. They give grants to universities and research institutes and so forth to conduct this kind of research, because that's where the expertise lies. There are so many broad disciplines that would need to be covered that we simply couldn't do it in-house, so what we've done historically is through the CTR and through, what we have is the SRG internally within the BATCo family of companies, provided funds to researchers to investigate basic fundamental disease processes, so that's on the fundamental side.

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On the product side in terms of what are we doing to address the issue from a product modification point of view, we have done a great deal of research in that area, but that isn't fundamental disease research. It's more product related.

BY MS. McDEVITT:

Q Carcinogens are found in tobacco smoke, are they not?

A Well, it depends on what you mean by a carcinogen. If you mean a substance which has been administered to animals under some dosing conditions and shown to produce an increase in some type of

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cancer, yes, they're found in the environment everywhere, including tobacco smoke.

Q There are something like 43 animal carcinogens that have been identified --

A Something like --

Q -- in cigarette smoke?

A Something like that.

Q How many of those are known human carcinogens?

A Known human, you mean according to IARC classification?

Q Yes.

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A I forgot the exact number. I think it may be maybe nine to twelve, something like that.

Q Could you just describe what the IARC classification system is?

A IARC is acronym for the Internal Agency for Research on Cancer. They do a lot of things, including research, but they also conducting assessments of chemicals in the environment and have a classification scheme based on various criteria that they spell out in their documents for rating various chemicals as to whether or not they might be expected to be known human carcinogens or probable carcinogens or possible carcinogens or insufficient information to rate and so forth.

Now, in the rating system, they don't -- the mere classification of a substance is not a risk assessment, so it isn't saying if something is classified as a carcinogen, then that means that anyone who encounters any dose of it or any exposure to it will get cancer. It merely means that something may have the potential under some conditions to cause cancer based on various criteria. So what they've done is they've rated several hundred chemicals as to their potential to cause cancer and given these various classifications according to the criteria that they

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have spelled out.

Q Does a chemical have to be tested on humans to prove that it's -- to be classified as a human carcinogen?

A Well, according to IARC classification, they will not give a known human classification to a substance unless there's human data, but there's data from epidemiological research, so if all they have is animal data, they won't give it a human, a known human carcinogen classification. They may give it a possible human carcinogen classification.

Q Is there a value to animal testing?

A I believe there is.

Q What's the value?

A The value is that it shows that under conditions that are controlled and replicated to exclude extraneous factors that might confound the results in that you can control the dose, you can control the exposure, you can examine the tissues or substances that you're particularly interested in, you can't do that in humans, it shows that under some defined and controlled conditions, you can elicit a

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particular response which can be measured, verified, replicated, reproduced, et cetera.

Q And how is that research then used to draw

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scientific conclusions about the way chemicals would react in humans?

A Right. Let's say, for example, some population might be exposed to trace amounts of substances in the water, drinking water, because there's a chemical waste dump site two miles up the road and it's leaching into the water and there's trace amounts of it, and no one knows -- the question might be, well, how do we know if this is harmful or not to people who are exposed to it. You really don't know placed on trace levels of exposure, so what's done is those substances are tested in animals at a wide range of doses spanning the entire range from an amount that will produce no observable effect up through amounts that produce some measurable toxicity that could be observed and replicated and up through levels that will kill the animal, and so you can describe the complete range and spectrum of responses that might be expected under certain dosing conditions. From that you try to compare the doses with the responses that you got in animals with what people are actually getting and try to make a judgment as to whether or not the exposure to those substances might produce harm. I mean, that's one possible use of toxicology.

(A recess was taken.)

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MS. McDEVITT: Let's mark as Appleton Deposition Exhibit 2 a document which appears on the Brown & Williamson Web site entitled Hot Topics, Smoking and Health Issues

(Appleton Exhibit No. 2 was marked.)

BY MS. McDEVITT:

Q I'll represent, you can see from the legend at the bottom, this document was printed off the Web site on May 18th, 2000.

A Okay.

Q I'll give you a chance -- have you had a chance to look at the document, Dr. Appleton?

A Yes.

Q And is this a portion of the Web site as to which you had input, as you testified earlier?

A Yes.

Q Are you in agreement with the statements made in this document?

A Yes.

Q When do you recall this Web site was introduced?

A I don't remember when the Web site was introduced. Well, I don't know if you mean when the Web site was introduced or when our positions began being posted. I think the Web site was existent at

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some time prior to putting these positions there.

Q When were these positions, the ones reflected in Exhibit 2, posted on the Web site?

A I think within the last two years, but I

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don't know exactly when.
MS. McDEVITT: Let's mark as the next one, I'd also like to mark as Appleton Deposition Exhibit 3 another document which was printed from the Brown & Williamson Web site on May 18th, 2000.
(Appleton Exhibit No. 3 was marked.)
BY MS. McDEVITT:
Q All right. This document is entitled Assessing the Risks Associated with Smoking.
A Right.
Q You've seen this document before, have you not?
A Yes, I have.
Q Did you have any input into the statements made in this document?
A Not drafting the statements per se, although I reviewed them and I agree with them. My input was primarily in preparing and organizing the document and determining what sources we would include, so it was more consulting.
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Q Now, at some point in time subsequent to the time when the general position on causation which is reflected in Appleton Exhibit 2 was put on the Web site, the information in Appleton Exhibit 3 was put on the Web site, right?
A That's correct.
Q Why was the decision made to post this information, which I'll term relative risk information?
MS. FORBES: Objection, asked and answered.
THE WITNESS: My recollection is that following the posting of this position, there was a -- and I don't know if this was the total reason, but I think it had a bearing on it. There was a paper that was published by one of the antismoking advocacy groups talking about our Web site and I think raising a criticism that essentially said, well, yeah, they've said some good things, but they don't talk about which diseases and what the strength of association is, something along that line. It was in response to a criticism, and so we felt that we ought to put that information on there to address the criticism.
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BY MS. McDEVITT:
Q Who made the decision to put this information on the Web site to address the criticism?
A I'm not sure who all had input, but I had discussions with Sharon Boyse about it. We felt that this was a way to address the criticism. But I don't know who else was involved in it.
Q For the record, who is Sharon Boyse?
A Sharon Boyse is the -- I think her title is director of scientific issues.
Q Do you report to Ms. Boyse?
A No.
Q Who do you report to?

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A Tilford Real, the vice president of research and development.
Q So someone instructed you to compile the information that's reflected in Appleton Exhibit 3?
A Not to compile the information per se. It was more of a general issue, which is someone has published a paper essentially being critical. In one way they were being complimentary, saying this is a good thing that we've got the Web site and we're stating our positions, but then they were talking about the lackings, well, what isn't said, and these were some of the things that were said to be lacking, so I

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think the general instruction was what can we do to respond to the criticism, and so Sharon and I discussed the issue and decided this would be an appropriate way to do that.
Q And then how did you proceed to convey your recommendation, if I may characterize it that way, that posting the information in Exhibit 3 would be appropriate?
A By talking to Sharon.
Q And did you speak to anyone else about this?
A Not that I recall.
Q Do you know whether she spoke to anyone at Brown & Williamson about this?
A No, I don't.
Q But at some point in time, you received information that a decision had been made to post relative risk information on your Web site?
A Not specifically relative risk information, but to respond to a criticism that more specific information isn't being made available by Brown & Williamson. It was Sharon's and my decision of just how to go about responding to that, and our decision was to include this sort of information.
Q So is it your testimony that the ultimate decision to post this information, the information

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reflected in Exhibit 3, rested with you and Ms. Boyse?
A The ultimate decision to respond to the issue came from somewhere else, and I'm not sure exactly where. It was communicated to me through Sharon. Sharon and I decided how to respond to the issue, what would be content to include in the Web site in order to address the general issue.
Q And you made a decision in connection with Ms. Boyse that these figures that are posted in Exhibit 3 were an appropriate way to convey this information to the public?
A Yes.
Q What's the source of the data that's reflected in Appleton Exhibit 3?
A I think primarily the 1989 surgeon general's report, at least for the relative risk information. I think it says in here what the sources are. Yeah, for the relative risk information, for the diseases and relative risks, it says the 1989 surgeon general's report. I notice that there's also sources from other surgeon general's reports as well though in the document. For example, here's a table where the source

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is a 1990 report.
Q Another source for the information in this document, Appleton Exhibit 3, is the American Cancer
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Society cancer prevention study two; is that right?
A I would need to check the study. Well, it says here as described in the surgeon general's report, so at least from the passage that I'm looking at on page nine, it refers to CPS two, but then has a parenthetical statement, as described in the surgeon general's report 1990, page 113.
Q All right. If you could look, if you would, at the upper right-hand corner which says page six of six in the printout, there's a table there which reads, Estimated relative risks for current and former smokers of cigarettes, males age 35 years or more, four-year paren 1982 through '86, close paren, follow-up of American Cancer Society 50-state study, paren, CPS two.
A Yes, I see that.
Q And then there's a notation which you'll see, Underlying cause of death, comparing current smokers to former smokers.
A Right.
Q And listing all causes and then a number of specific diseases; is that right?
A Yes.
Q Under all causes you'll see that current smokers, there's a figure 2.34; former smokers, there's
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a figure which reads 1.58. Could you explain what those numbers mean?
A My understanding is what they mean is that for current smokers, they would be estimated, their death rate, their chance of dying prematurely as a result of a smoking related disease, which were identified in this analysis in the surgeon general's report, is 2.34 times higher than nonsmokers.
Q So if you turn to the next page, page seven of seven, on the first table, third entry from the bottom of the table, which reads cancer, lung, and there's a figure under the column which I think would correspond to current smokers which is 22.36.
A That's correct.
Q That would mean in your view that current smokers have a 22.36 percent higher chance?
A Not percent. It would be a fold increase or a times increase.
Q Okay.
A Or maybe the best way to say it is if you're looking at a population of people, let's say a hundred thousand nonsmokers and a hundred thousand smokers, and you're looking at a total incidence, the annual death rate of lung cancer, from lung cancer, in the nonsmokers, the figure would be whatever it is. In the
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smokers, it would be 22.36 times higher than that.
Q All right. What's considered to be a high relative risk in standard epidemiological literature?
A In the literature you see figures reported of

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either -- it varies, but a figure of two or three is sometimes offered as a relative risk, where below that you really can't rule out confounding and study methodological bias is interfering with the confidence of the result, so either two or three, somewhere in that range.

Q So above three would be considered high, relative --

A I would say three, four, five, would be, yeah, moderate to high.

Q Is work currently underway on continuing to modify Brown & Williamson's Web site?

A Yeah, the site's always under revision potentially if there's a reason to do it.

Q Are you currently working on any Web site related projects?

A Not that I'm aware of, but I don't have day-to-day access or exposure to what's happening on the Web site. I mean, we are doing some things right now, but they're not relating to smoking and health so much as related to other issues, like ingredient

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related issues.

Q Are you aware of any public response by the general public to Brown & Williamson's introduction of this revised Web site?

A Some. I've read some articles in the press about it. I think there might have even been something in the Wall Street Journal. There was this one that I had mentioned before that had prompted us to respond to the issue with this particular part of the Web site. I think there's been one or two or two or three things in the common press, the lay press.

Q Do you believe it's reasonable for the public to rely on the statements that are posted on this Web site?

MS. FORBES: Objection to form.

THE WITNESS: I think the public relies on all sources of information about the health effects of smoking. I would assume that they rely primarily on what the public health authorities have said to them over the years, and I would assume that that's their major source of information.

BY MS. McDEVITT:

Q Do you believe it's reasonable for the public

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to believe the statements that Brown & Williamson has posted on this Web site?

MS. FORBES: Objection to form.

THE WITNESS: Do I think it's reasonable for them to believe it?

BY MS. McDEVITT:

Q Uh-huh.

A I think that they can go to these statements and read them and form their own view. I would not expect that they would doubt it. Well, they might actually, because there's been so much said about tobacco companies and so forth, but I think it's reasonable for them to look at this and look at what

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we're saying and then make a judgment about it in the context of other information that they've received and make their own decision if they think that this is reasonable for them to rely on it or not or rely on other information that they've received from a variety of other sources.

Q But the Brown & Williamson Web site is a source that smokers or the general public can use to get information about the risks associated with smoking, right?

A It's one source amongst many sources, that's correct.

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Q Have you had any input into the BATCo Web site?

A No.

Q Have you ever seen that Web site?

A No, I haven't been to that site yet. I'm aware that it's up and running, but I haven't been there yet.

Q Has it been the subject of discussion in any of your scientific interaction with people at BATCo?

A No.

Q Was it discussed at SGR meetings or --

A I think it was mentioned. It was mentioned at the most recent SRG meeting that they're ready to go on-line. That was pretty much the extent of it. It was just sort of like by the way, our Web site will be up and running as of thus and such date, just sort of for y'all's information.

Q So there wasn't any collaboration between Brown & Williamson and BATCo scientists in formulating the positions that BATCo put on its own Web site?

A No. Well, let me just clarify it. We discussed the issues from time to time, but there wasn't any -- so generally the issues are discussed amongst ourselves, but there wasn't specific collaboration for the positions on the Web site.

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Q Does the B.A.T. group of companies have a policy on smoking and health?

A Not that I'm aware of.

Q Did you have input, do you recall, into any of the other topics covered on the Brown & Williamson Web site?

A Yes, I did.

Q Which topics were THEY?

A The ETS one, the ingredients one, safe cigarette research, the -- I think there's one specifically dealing with FTC ratings, and I think that's about it. Oh, let me mention, I mean, we're on smoking and health, but all the ingredient related stuff, so their ingredient statements that we've got for our products and so forth, all that as well.

Q Let me change topics before lunch.

A Can we do -- I'm sorry to say this. Can I take a quick break?

MS. McDEVITT: Oh, sure.

(A recess was taken.)

BY MS. McDEVITT:

Q Dr. Appleton, is nicotine addictive?

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A I think what you decide about that depends on what sort of definition you use or what criteria you use for making that judgment. Under the commonly used

term, I would regard it as being addictive as people use the word today.

Q What do you base that opinion on?

A The fact that there have been many definitions used to evaluate addiction in a range from a more pharmacologically based set of criteria which were used by the 1964 surgeon general's advisory committee, and at that time they decided that nicotine was not addictive. Rather, they concluded it was habituating.

In 1988 they used a different set of criteria, which were more based on behavior and psychological and behavioral criteria, and at that point the surgeon general's advisory committee determined that nicotine was addictive.

Q What are the pharmacologically based criteria?

A Well, one of them is intoxication. Another is presence of withdrawal symptoms. One is tolerance. I think there's one, there may be one other that I forgot. They're spelled out in the surgeon general's report of 1964.

Q Now, I would note that in your expert report in the Blue Cross section which we've previously marked as Appleton Exhibit 1 you do not set forth any opinions

on addiction; is that correct?

A Well, let me look at it. It may be. Yes, you're correct.

Q Is it your intention to testify at trial as with respect to addiction issues?

A I presume so, if you ask me questions about it.

Q Is there any particular reason why addiction was not addressed in your expert report?

A Not that I'm aware of.

Q Is nicotine in tobacco smoke addictive?

A Well, now I'm thinking I might need to modify my previous answer. Could you go back and ask the question you asked me first, the very first question when you changed subjects and went to nicotine?

Q It was is nicotine addictive.

A Okay. Let me revise my answer.

Q Okay.

A Because I didn't make the distinction between nicotine per se and nicotine in tobacco, which is a distinction that you've just make. I've just thought you meant, incorrectly, you meant nicotine in tobacco.

Q Okay.

A At this point I don't know if we know or if anyone knows if nicotine per se is addictive. There

hasn't been a long history of use or exposure to, long-term exposure of people to nicotine, pure nicotine. There are now nicotine replacement therapies like the skin patch and chewing gum and inhalers and so

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forth, but at this point I don't think there's enough experience with the use of those products to determine what the behavioral effects of use of those products are. So that would be my amended response to the question you asked me first.

I don't know if you want to ask me follow-up questions or not or you want me to just go to the question you just asked me about nicotine and tobacco.

Q Well, no. We'll go on to that question. You draw a difference between nicotine in tobacco smoke --

A Yes.

Q -- as opposed to nicotine. And what are the reasons -- well, first of all, is nicotine in tobacco smoke addictive?

A Well, my answer would be the way I answered the question in the first place.

Q Okay.

A Which is what I assumed you meant, but incorrectly so.

Q Right.

A Which is whether or not smoking is addictive

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per se, regardless of what the constituents are in smoke, I think depends on what criteria you use to make that judgment. And as I said, if there are pharmacologically based criteria, as was used by the 1964 surgeon general's advisory committee, one would conclude that it's not addictive, as did the advisory committee, whereas if you use more behaviorally based and psychologically based criteria, then you would conclude that it is, as was done in 1988.

Q In your view, is there a difference between addiction and dependence?

A It depends upon what definitions one uses to define those two terms.

Q Do you define them differently?

A I guess I would. I would look at -- I would define addiction in my view, again I don't think there's any absolute criteria, as sort of a stronger behavioral type of thing than dependence, but that's just in my own mind. I haven't sought to review whatever definitions are out there to see and compare the differences and to what extent they differ or are similar.

Q So if I asked you the same two general questions but substituted the word "dependence" for "addictive," i.e., is nicotine, you know, dependence

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producing or is nicotine in tobacco smoke dependence producing, would your answers be different than --

A My answer would be similar to before --

MS. FORBES: Objection to form.

THE WITNESS: -- in that it would depend on the criteria you're using to define dependence producing. If you give me a set of criteria and say does it fit these criteria, I can answer your question. I don't know what criteria you're using. I'm just aware that these definitions have evolved over time and the criteria used to make these distinctions has also evolved

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over time.
BY MS. McDEVITT:
Q Is cigarette smoking addictive?
A To me, same answer that I gave earlier, which is it depends upon what criteria you use to make that evaluation.
Q Then it's your testimony that if one uses pharmacologically based criteria, cigarette smoking would be addictive?
MS. FORBES: Object to the form.
THE WITNESS: I believe my testimony was that if you use pharmacologically based
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criteria, as was done by the surgeon general's committee, you would conclude it's not addictive because it doesn't satisfy those criteria.
BY MS. McDEVITT:
Q Yes. And it's your testimony that if one uses behaviorally based criteria, then it would be, then cigarette smoking would be addictive?
THE WITNESS: Yes.
MS. FORBES: Object to the form.
BY MS. McDEVITT:
Q Do you have a problem with the -- do you dispute the use of the word "addiction" for any other reasons besides your pharmacological versus behavioral dichotomy?
MR. DUNNE: Object to the form.
MS. FORBES: Object to the form.
MR. DUNNE: Go ahead.
THE WITNESS: Well, I mean, ultimately the question is, to me, all definitions aside, is can people quit. I think that's the ultimate question, and I think the evidence shows clearly that they can and that they have in large numbers.
In fact, I was listening to the news
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yesterday morning, and they said that within the past year there's been an eight percent decline in tobacco smoking, in the last ten years there's been a 40 percent decline, so to me the issue is really can people quit. And I suppose that if the use of the word "addiction" leaves he impression on people that they can't quit, then I guess I would, I'd be concerned with that. That sort of depends upon what impact or connotation that term has on people who are hearing it. I think people can quit and they do obviously, and to me that's the real issue, as opposed to what semantics we use or how we choose to define addiction.
BY MS. McDEVITT:
Q What, if anything, in your expert opinion has changed, let's say over the past five years with respect to the study of nicotine addiction?
MS. FORBES: Object to the form.
MR. DUNNE: I'm sorry. Can I have that reread, please.

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MR. DUNNE: Object to form.
You may answer.
THE WITNESS: I'm not sure I
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understand your question either, but if your question means has research, new research been conducted in the last five years, yes, there are findings that are available now that there weren't five years ago in all areas of biomedical research, so the research effort keeps marching forward, so there are new studies that have been done and new research that's been reported and published in that area.
BY MS. McDEVITT:
Q Can you describe any of those studies for me?
A A lot of it right now, the focus seems to be on trying to determine at the pharmacological level and the molecular level in the brain what nicotine might be doing, and a lot of that research is focused on dopamine in particular, which is a neurotransmitter, and what influence exposure to nicotine may have on dopamine release and dopamine action centrally.
Q What is dopamine's function?
A Well, it has a lot of functions. It serves basically to transmit nerve impulses in the brain, and not just for nicotine, but for everything that we do. It's known to play a role in your reaction, emotional
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reaction to, let's say if you experience something pleasant or adverse. It's also thought to play a role in basic functions like coordination and locomotion in the body. I don't think everyone knows all of its functions, but they know some of them.
But it's also thought to play a role in what's called reinforcement, not just for drugs, but for anything. If you eat a strawberry ice cream cone and you like it, you're probably getting a release of dopamine in your brain that signals that that is a -- it's an event that you like and that you would like to experience again, or if you look at a photograph of a pleasant scene, like a mother holding a child or something like that. There's been research done along those lines to show that dopamine may play a role in people's reactions to these sorts of stimuli.
So we don't know everything that dopamine does, but some things are known, and that is an area of investigation right now with respect to nicotine and other substances as well.
Q Those other substances also encourage the release of dopamine; is that right?
A There are other -- there's lot of things, either substances and/or, as I said, emotional reactions that result in release of dopamine.
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Q Do amphetamines result in the release of dopamine?
A I don't know specifically if they do or not. That I don't know. I'd have to go back and investigate

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that, research it.
Q Do you know of any other specific drugs that encourage the release of dopamine?
A I believe I've read that other drugs that are thought to be substances of abuse, like heroin and cocaine do, as I said, as well as other, you know, non-drug situations as well.
Q Do you believe that nicotine is a drug?
A In the physiological sense, I do, because nicotine, if it's taken, can result in certain physiological changes. It can change your heart rate and other things. But I don't think it's a drug as far as the FDA classification goes in terms of it's not, at least in cigarettes, it's not intended to treat or mitigate or cure disease or affect the structure or function of the body.
Q You're aware of internal documents in which Brown & Williamson has referred to nicotine as a drug, are you?
MR. DUNNE: Object, overbroad.
THE WITNESS: Yes, I think I've seen

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it referred to that way in documents.
BY MS. McDEVITT:
Q And are you aware of internal documents in which BATCo refers to nicotine as addictive?
MR. DUNNE: Object, vague.
THE WITNESS: I've seen the term "addiction" used in some documents. What wasn't clear to me though is just how they meant that term, and if in the process of using that term, they were seeking to, you know, draw a distinction between addiction and habituation or if it was just being used sort of in colloquial ways, the way it's used frequently with a lot of things, but I have seen the term used.
BY MS. McDEVITT:
Q Did you have any input into Brown & Williamson's Web site statements on addiction?
A Yes.
Q Can you describe your input?
A It was again working with Sharon Boyse in connection with anticipation of communicating directly to the public on these issues and sort of formulating a position statement on it, or conjointly with her.
Q Did you consult any sources to formulate your

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position statement on addiction?
A I don't recall consulting sources specifically for that activity, but I mean, I had been reviewing the literature and was familiar with what the surgeon general has said and what the general literature has said and so forth on addiction, so I mean I had that background, but I didn't specifically consult sources for that particular activity that I recall.
Q Do you believe that the majority of the scientific community supports the classification of nicotine as an addictive substance?
MR. DUNNE: Object to form.

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MS. FORBES: Object to form.
MR. DUNNE: You can answer.
THE WITNESS: I don't, I really don't know if they do. I would assume that the majority of the scientific community would agree with the statement that nicotine is addictive, but if they said I agree with that, I don't know if they're really agreeing to that or using that term in the context of doing a rigorous assessment to draw a distinction between addiction or habituation. I would

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just assume that they would say yes, we agree with that statement, if that's what you mean by the majority of the scientific community support that or whatever it is that you said.

BY MS. McDEVITT:

Q You're familiar with the DSM, are you not?
A Generally. I'm not specifically familiar with the DSM and all the different evolutions of the definitions that have been used for addiction by it.
Q Are you aware of research that would corroborate scientists' conclusion that nicotine is addictive?
MR. DUNNE: Object, vague, ambiguous, lacking in foundation.
Go ahead.
THE WITNESS: Well, I think that again, it goes back to the definition issue. If a definition is constructed that says if people behave in a certain way or partake of the product in a certain way and then the evidence suggests that that's what they're doing and if that's the criteria you use, then that's what they do, but I don't know of any specific test or measure

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or study that can be applied to classify something as being addictive or not.
I think it's a judgment call based on the totality of evidence, both pharmacological and behavioral, and then applying that weighting of evidence to whatever criteria or definition that you're using.

BY MS. McDEVITT:

Q Are there any other physiological effects of nicotine other than the increase in heart rate you testified to earlier?
A Nicotine seems to have central effects whereby it can act as a stimulant. In situations where people might be bored or performing tedious or mundane tasks, it can seem to increase vigilance and cognitive ability and focus and attention. And I'm not sure if anyone really know how it does that, but it's an effect that seems to have been reported in the literature. And it can also seem to have relaxing effects if someone is in a stressful or nervous situation as well, and these are sort of central, to be distinguished from

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the peripheral effects that I had described earlier.
Q If someone employed by the tobacco industry stated that cigarette smoking is addictive, would they
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be making a true statement?
MR. DUNNE: Objection.
MS. FORBES: Objection.
MR. DUNNE: Incomplete hypothetical, calls for speculation, argumentative.
Go ahead.
THE WITNESS: I think it goes again back to the definition or the issue of what they meant by that, were the circumstances of the statement were, namely were they sort of saying it casually, or were they using that term after conducting a rigorous analysis of the literature and trying to draw a distinction between addiction versus habituation. I would say it entirely depends on the circumstances under which that statement was made and the context in which it was made.
(Discussion ensued off the record.)
MS. McDEVITT: I'd like to mark as Appleton Deposition Exhibit 4 a document entitled What are we Talking About which bears a couple of different Bates numbers, but I'll read the one on the far left beginning with 107356063 through 73.
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MR. DUNNE: Is this a Blyley document?
MS. McDEVITT: I don't believe it is, no.
(Appleton Exhibit No. 4 was marked.)
BY MS. McDEVITT:
Q Have you had a chance to review or to look at this document, Dr. Appleton?
A I haven't reviewed it in depth. I've only sort of flipped through it superficially.
Q Have you ever seen it before?
A No, I haven't.
Q Can I direct your attention to page eight of this document, Appleton 4, which in the upper left-hand corner bears the legend OH-8?
A Yes.
Q Under the title Present Strategy for Product Modification, second bullet point reading Nicotine, the document purports to set forth linked problems, one of them being the addictiveness of nicotine. This is a document apparently authored by someone at BATCo; am I correct?
MS. FORBES: Object to the form.
MR. DUNNE: Object, lack of foundation, calls for speculation.
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THE WITNESS: I haven't seen anything in this document that would indicate who the author was or what company it was authored from.

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BY MS. McDEVITT:
Q Well, other than the legend at the bottom of the document; is that correct?
MR. DUNNE: Well, wait a second.
MS. FORBES: Same objection.
MR. DUNNE: That's argumentative. Object to form.
THE WITNESS: That legend -- I don't really understand, you know, what exactly lawyers do when they get documents, and so all that says to me is it somehow was involved in Minnesota litigation. I mean, it might mean it was a BATCo document, but it may, for all I know -- well, I just don't know. I can't assume that, because I just don't understand necessarily what Bates numbers and different stamps and so forth mean. You know, this document has quite a few. I'm not disputing that it's a BATCo document. I just don't know that it is. I can't confirm it.

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MR. DUNNE: I mean, just to point out, it says Produced by RJRTC on the other side of it, on the marking on the left of it.
MS. McDEVITT: That's right, but I will represent that we've gotten a lot of documents, including many, many deposition transcripts, purportedly produced by Brown & Williamson that bear that legend all over them, so it's a little confusing to us as well, but I don't know if that's a subject for now.
THE WITNESS: And what I'm reacting to is that I don't see -- I mean, all these things were all stamped on it after it was prepared obviously. I don't see, you know, a letterhead or a to, from, with names that I recognize or anything along that line linking it to all this stuff that's been stamped on afterwards, and that's why I'm not certain.
BY MS. McDEVITT:
Q All right. Let's just look at -- we were on page eight under the heading Nicotine linked problems. Do you see where I am?

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A Yes. I see that, yes.
Q The first statement reads Nicotine as a precursor of carcinogens, paren, Hoffman, close paren. Is nicotine a precursor of carcinogens, in your view?
A Not that I'm aware of, but I don't know exactly what was meant by that statement.
Q Do you know what they mean or do you know what the reference to Hoffman is?
A Well, I assume that's Deitrich Hoffman, and Deitrich Hoffman may have said something or published something or expressed a view somewhere somehow that is linked to this statement, but I don't know what that is. And also I can't -- I'm trying to date this thing,

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but I can't do that either because there's no dates on it, so that could be helpful in trying to decide what it means, but I really don't at this point.

Q Low nicotine products unacceptable is the next bullet point, if you will. Does Brown & Williamson manufacture any low nicotine products?

A Well, we manufacture products that span a very wide range of yields as determined by FTC testing methodology, including products that are very low in both tar and nicotine yield.

Q Are you familiar with any information

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regarding consumer acceptability of a very low yield nicotine product?

A Some, yes. Generally low yield products only occupy a very small percentage of market share, and this is -- and we don't know if it's because of nicotine. They're low yield in everything, in total smoke, so it may be related to other elements. We know that Philip Morris made an attempt to market a very, very low nicotine product called Next. That product wasn't successful in the marketplace, so there is some reason to believe that acceptability of products that are very, very low in nicotine will be limited.

Q Do you have a view as to why the acceptability of low nicotine, very low nicotine products --

A Right.

Q -- is limited, would be limited?

MR. DUNNE: Object to the form.

THE WITNESS: I think it's because nicotine contributes to the overall sensory experience of smoking and that if you remove that, then the product isn't considered acceptable, that it will seem like there's something wrong with the cigarette or it won't be the same.

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BY MS. McDEVITT:

Q What do you mean by sensory experience?

A The whole constellation of taste and stimulation, either chemical, or in the case of nicotine, there is some pharmacological stimulation, the whole constellation of senses that are stimulated by smoking, which as I said, does include taste to some degree, stimulants like in the back of the throat, cooling effects if it's a mentholated cigarette, effects that are experienced in the nasopharyngeal region, which is more of a flavor thing than a taste thing. There's a variety things, and nicotine I think contributes to that.

Q And the next statement, the next bullet point, which I would propose we get back to in further detail after lunch, reads Compensation to obtain required dose of nicotine. You're aware generally of the concept of compensation; is that right?

A Yes. It's not -- I wouldn't necessary characterize it as being in the context of a required dose of nicotine, but I am familiar with the general behavior phenomenon of compensation.

http://legacy.library.ucsf.edu/tid/jzn05a00/pdf Stanford Libraries/tobaccoindustrydocuments.ucsf.edu/docs/qsxd0001

Q The last bullet point under Linked Problems reads Addictiveness of nicotine, and I take it your testimony would be that it depends on what you mean by

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addictive; is that right?

MS. FORBES: Object to the form.

THE WITNESS: Well, in thinking about your prior question, my testimony was that it would depend on the circumstances under which this word was used and the context in which it was used, which I -- there's no way I can tell that really from this document, at least from the extent that I've reviewed it so far.

(A lunch recess was taken.)

BY MS. McDEVITT:

Q Dr. Appleton, can B&W, Brown & Williamson, regulate the amount of nicotine in cigarettes?

A I don't know if I would use the term "regulate." The amount of nicotine in the blend is a function of the nicotine content of the tobaccos that go into that blend, and that can vary from one tobacco type to another, and the proportions of those various tobacco types could be varied as well, so from that point of view, that is something that is possible.

MS. McDEVITT: I'll mark a document as Appleton Exhibit 5. It's a four-page document on the letterhead of Brown & Williamson Tobacco Corporation dated

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September, I believe it's 18th, 1963, bearing Bates number, start Bates 102630333 through 36.

MR. DUNNE: Is that a Blyley document?

MS. McDEVITT: No.

(Appleton Exhibit No. 5 was marked.)

BY MS. McDEVITT:

Q Have you had a chance to review this document, Dr. Appleton?

A I'm part of the way through it. Let me finish reading the whole document, please.

Q Sure.

A Okay.

Q Do you know who John Kirwan was?

A No.

Q What about the author of this letter, R.B. Griffith?

A That name I recognize as a B&W employee.

Q Do you know what Mr. Griffith's position at B&W was?

A No, I really don't.

Q Turning your --

A Other than he was a scientist I believe within R&D.

Q Turning to the third page of Appleton

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Exhibit 5, the document appears to note the, quote, probability of a correlation between consumer acceptance and nicotine level. Certainly our own sales pattern during this period has been positively

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correlated with the nicotine level of the tobacco in our products. Do you see that statement?
A Yes.
Q Do you believe that the nicotine level in Brown & Williamson's products has a positive correlation on sales?
MR. DUNNE: Object as to time. In other words, this is '63. Do you mean it for all time or do you mean it today or '63?
BY MS. McDEVITT:
Q Let's go back to '63 first.
A No, I don't believe nicotine is positively correlated with sales for several reasons.
First of all, if it was, then all products should sell about the same because most or at least within a similar delivery category, let's say if you've at a full flavor, you're talking about 15 milligrams of tar and about 1.3 milligrams of nicotine. If that theory were true, then all products, which represents most products in the world, so have comparable sales,
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and they don't. In fact, I don't think you could really draw any pattern or correlation between sales and yields generally.
Secondly, this document itself raises questions about that notion. The very next sentence from the one that you read was however, we have also had major changes in advertising plus some minor changes that could lead some to question the validity of the nicotine hypothesis. And then later in the document they also talk about how complex this whole assessment is and how important other factors, in particular, sugar level that they're talking about here, as well as other complex tobacco leaf considerations are to overall acceptance of tobacco products.
Q The document also notes on page four in the carry over paragraph, I think that we can say even now that we can regulate fairly precisely the nicotine and sugar levels to almost any desired level management might require. Of this I am confident.
Would you agree that this document suggests that Brown & Williamson could in 1963 regulate levels of nicotine in its products?
MR. DUNNE: Object, lack of foundation, calls for speculation.
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THE WITNESS: The document says that, and I think that if that were something that for whatever reason we want to do, I think that could be done. I think that is possible. It doesn't mean we did it, but I think that is possible.
BY MS. McDEVITT:
Q Do you have any knowledge, time frame is now 1963, that Brown & Williamson did in fact regulate nicotine levels in its products?
A No. I don't know what their practices were then.
Q What about today, does Brown & Williamson

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regulate nicotine levels in its products?
MR. DUNNE: Object, overly broad.
THE WITNESS: No. We select tobaccos primarily for their sensory characteristics and taste characteristics. Nicotine is a natural component of tobacco, and it comes in with the tobaccos, and if we determine that a tobacco blend for a particular product has a certain ratio of tobaccos, we will use quality control procedures to assure that that is maintained according to that recipe, but

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we don't regulate -- we don't have an intent to regulate, let's say a particular level of nicotine or specification of nicotine from, you know, from the point of view I think that they're talking about in the document here, but actually I don't know the point of view in the document. But we do not regulate the level of nicotine to achieve a target specification or delivery per se.

BY MS. McDEVITT:

Q Has any research been done at Brown & Williamson which addresses the issue of the speed at which nicotine is absorbed into the body after it's inhaled in a puff of smoke?

A Yeah, some work has been done like that by BATCo, not by Brown & Williamson, but by BATCo. I've seen work like that done.

Q Could you describe that work for me?

A Well, I'm thinking of two areas of research specifically. One is some of the Battelle work, the fate of nicotine in the body. That report in particular looked at the, what I call the pharmacokinetics of nicotine under different conditions of exposure.

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And then another research report, and I forget even the author and the name, were looking at heart rate as a measure of nicotine effects and looking at various product parameters and the extent to which they may influence that parameter, the measurement of heart rate.

Q Approximately when was the Battelle work conducted at BATCo?

A About this time frame, I think. I think it was in the mid '60's.

Q What were the conclusions of that work?

A Of the particular study that I mentioned?

Q That's right.

A Oh, there was a lot of different conclusions. They made basic measurements on the amount of nicotine that's absorbed following smoking. I think they may have compared filter to nonfiltered cigarettes. They may have compared absorption of nicotine in men and women. They looked at the basic distribution of nicotine, the fate of nicotine in the body, the urinary metabolites, things like the plasma half-life, and they also I think did some animal work

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and compared that with some of the animal work.
Q Did the Battelle work you've just testified to make any findings regarding cardiovascular disorders
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and nicotine?
A They may have looked at -- that particular study I don't think looked at any cardiovascular indices. I think they just looked at absorption, distribution, metabolism and elimination, and I don't believe they made any measurements related to cardiovascular disorders. They may have mentioned something in the document, but I don't recall it being specifically focused on cardiovascular effects.
Q Was the Battelle work shared with the public?
A To my knowledge, it was not.
Q Was it shared with any government body or agency?
A Not to my knowledge.
Q What were the findings of the second work you mentioned on the heart rate and cigarette parameters research?
A My recollection was what they were trying to look at was whether or not there was any indication that cigarettes which had a higher extractable nicotine level would produce effects as measured by heart rate any more rapidly or not, and my recollection is that the conclusion was that it did not. It concluded that cigarettes with higher extractable nicotine didn't seem to have any effect different than cigarettes with lower
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extractable nicotine levels.
Q When was this research conducted?
A I think that was -- that might have been sort of early to mid '70's. I don't remember the exact date.
Q Were the results of this research to your knowledge shared with the public?
A Not to my knowledge.
Q Were the results shared with any government agency or body?
A Not to my knowledge.
Q Have you reviewed any other studies, outside studies, outside Brown & Williamson or BATCo, regarding the rate at which nicotine is absorbed? Specifically I would refer to studies suggesting that nicotine in cigarette smoke would reach the brain in 10 seconds.
A Oh, yeah. There's been a lot of research on that. That's been studied for decades, even I think earlier than some of this work that I just mentioned. There's been a lot of work on that, yes, looking at the absorption, metabolism, distribution, elimination, and I've seen the estimate that when inhaled, nicotine reaches the brain in some period of time. It's different depending upon the publication, but in a few seconds generally. Yes, I've seen that.
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Q Do you have an opinion as to the validity of research drawing the conclusion you just mentioned?
MR. DUNNE: Objection, overly broad.
THE WITNESS: Do I have an opinion

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as to whether or not nicotine when inhaled could reach the brain in a matter of seconds?

BY MS. McDEVITT:

Q Yes.

A I have no reason to doubt that. It seems like reasonable research findings to me.

Q Are you aware of work undertaken by other tobacco companies with respect to rat self-administration of nicotine?

MR. DUNNE: Object, overly broad.

THE WITNESS: Nothing beyond what I've read in the press. I haven't actually reviewed internal documents or had discussions, but I've read a fair amount in the press, in press accounts.

BY MS. McDEVITT:

Q Is nicotine the reason why people smoke?

A I don't believe it is.

Q Do you believe that people would smoke if cigarettes did not contain nicotine?

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A Let me amend my previous answer. I don't believe it's the sole reason. I do think it's an important reason, but I don't think it's the only reason why people smoke.

And I'm sorry, let me -- can you please repeat your previous question or your last question.

Q I believe it was would people smoke if nicotine were not in cigarettes?

A I assume you mean smoke tobacco.

Q That's correct.

A No, I don't think they would smoke tobacco if there were no nicotine in the tobacco.

Q Do you agree with the statement in the document that we were just discussing previously which is in front of you, Appleton Exhibit 5, on the first page in the first numbered paragraph at the bottom, which reads, quote, Nicotine is by far the most characteristic single constituent in tobacco, end quote?

A Well, that's actually sort of two statements, so let me break it apart and address each part.

If the first part of the statement means -- it says nicotine is by far the most characteristic single constituent in tobacco. If what they're saying there is that nicotine is unique to

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tobacco and is sort of a characteristic of tobacco that's unique, I agree with that. It's to me like vanillin in vanilla beans or caffeine in coffee. Nicotine is unique. Well, it's not entirely unique. It occurs in other vegetables, but it is one of the things that distinguishes tobacco from, let's say lettuce leaves, so in that context I agree with that part of the statement.

Now, let me look at the second part of the statement. It's hard for me to say if I agree with it, because I don't exactly know what they mean. I know what known physiological effects means, I think, but what I don't know what they mean are positively

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correlated with smoker response. I don't know what response they're talking about there. I don't know if they mean taste or heart rate or acceptance. It's hard to know exactly what they mean.

Q What's the basis for your opinion which you stated in response to a question or two ago that nicotine is an important reason why people smoke?

A Well, it distinguishes tobacco from other substances, and people don't smoke just anything and everything, but some of the work that I'd mentioned earlier that -- I mean, Philip Morris put a cigarette out that had no nicotine, and it had zero consumer

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acceptance. That would suggest that people probably wouldn't accept a product that had zero nicotine.

There does appear to be a wide range of levels or at least deliveries of smoke, including nicotine, that people will accept, but there's a limit of how low delivery products can be made where people will still continue to accept them. Now, I don't know if that's only for nicotine, because there's other characteristics of smoke are apparently important in why people smoke.

I think nicotine is important, but I don't think it's the only thing, so I would say it's based on that, that it's a characteristic constituent of tobacco that sort of defines what tobacco is and the fact that attempts to market products that are devoid of nicotine haven't really received much consumer acceptance.

Q Would you agree that there are a certain percentage of smokers who will continue to smoke even though they've been diagnosed with a disease that's associated with smoking like lung cancer?

A I think that's --

MS. FORBES: Object.

MR. DUNNE: Object, lack of foundation.

Go ahead.

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THE WITNESS: I would expect that would be the case. I don't have firm numbers or figures of what percentage, but it wouldn't surprise me at all if that's the case.

BY MS. McDEVITT:

Q Why would you expect that would be the case?

A Because that's the way people are with everything, not just smoking. I mean, someone might be told that they should lose weight and they don't or that they should do other things in their lifestyle that might be beneficial, but they don't, despite the advice that they receive. That's just sort of human nature, I guess.

Q Has Brown & Williamson or BATCo ever attempted to identify nicotine analog?

MR. DUNNE: Object, overly broad.

Go ahead.

THE WITNESS: I have seen reports where it indicated that nicotine analog research had been conducted by BATCo.

BY MS. McDEVITT:

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Q When was that research conducted?
A I don't remember the exact time frame, but my recollection, it was -- I really don't know. It
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probably was -- '70's would be my best guess, but I could be way off. I just don't recall the dates of the reports.
Q Do you recall the findings of these studies?
A My recollection is it was just simply we've attempted to do organic synthesis on a variety of analogs, we have achieved that, here's what they are. It's pretty much sort of chemistry work.
Q There wasn't any follow-on research to that to the best of your knowledge?
A Not to my knowledge. I didn't see anything that was biologically related or physiologically related. It was just simply organic synthesis and chemistry to my recollection.
Q If you could, describe Brown & Williamson's research and development structure.
A Research and development what?
Q Structure.
A Structure. Okay. Well, we've got a vice president of research and development, and then it's -- the department is broken up into several broad areas. One is product development and another is applied technology. Another is routine analytical. Another is analytical chemistry, or I should say analytical research. Then there's scientific and
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regulatory affairs. And within those, there are some substructures such as we have a library. We've got a statistics group. We've got a group that deals with consumer inquiries, specifications.
Q Each of the four subgroups you named have a different director; is that right?
A All the four major ones I just mentioned have different directors. The sub ones don't, so I'll just go through them so you're clear.
Q Sure.
A Product development has a separate director, applied research, routine analytical, analytical research and scientific and regulatory affairs. I'm sorry. There's one other group I left out, which is leaf blending. That also has a separate director.
Q Who's the director of product development currently?
A Drew McMurtry.
Q Who is the director of applied technology?
A I think it was applied research.
Q Applied research.
A Hugh Honeycutt.
Q Who's the director of routine analytical?
A Alex Golub.
Q And you're the director of scientific and
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regulatory affairs?
A That's correct.
Q Who's the director of leaf blending?
A Roger Black.

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Q What types of interaction does Brown & Williamson have with BATCo research?
A What types?
Q Uh-huh.
A We have regular ties to them by phone, by e-mail. We have conferences that are focused in specialized areas from time to time like flavor development or product development or applied technology, and there are specialist meetings. Sometimes they collaborate on specific projects where there's overlap.
We exchange reports back and forth so that we're aware of what each other is doing to assure that there might not be overlap, or if there is overlap, to make sure that, you know, any new findings will be known by the other areas. We have a variety of mechanisms for having fairly close collaboration with our sister research and development organizations.
Q How do Brown & Williamson and BATCo share the cost of research and development?
A I'm not specifically familiar with whatever

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cost sharing agreements we have at the time, so I'm aware that cost sharing agreements have been in place from time to time. They've gone through various revisions. I really don't know the details of it. I'm not directly involved in it, so I can't speak knowledgeably on that, only that it happens or has happened.
Q Are you aware of any of the criteria used to determine shares of costs in research and development expenditures?
A None.
Q So you're not, in your position as director of regulatory and scientific affairs, responsible for budgeting expenditures?
A I am for my own department, but not for expenditures related to cost sharing. That doesn't come out of my department.
Q All right. So Brown & Williamson collaborates with other B.A.T. group companies in research and development as well?
A Yes.
Q Is BATCo, would you describe that as being the primary collaborator with Brown & Williamson?
A I don't know if I can say that. I would say it probably depends on the project. We certainly

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collaborate a lot with BATCo, but we also collaborate with the other companies as well, and I would say it's probably more project specific, depending upon the nature of the project who we might be collaborating with.
MS. McDEVITT: Let me mark a document as Appleton Deposition Exhibit 6.
MR. DUNNE: This is a Blyley document?
MR. PACE: Yeah, is it.
MR. STEIN: I think it is, yes.
(Appleton Exhibit No. 6 was marked.)
BY MS. McDEVITT:
Q This is a document which reads on the cover

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Highly Confidential, Attorney Work Product. It's a multipage document bearing the initial Bates number 689102402A, which runs through 689102462.

MR. DUNNE: And for the record, we are sealing this portion of the record and taking the position that it is confidential and it's privileged, and there are certain restraints in which the attorney asking questions is going to be confined, but we'll work our way through it, I'm sure.

MS. McDEVITT: We'll give it a go.

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BY MS. McDEVITT:

Q I don't expect you, Dr. Appleton, to sit there and read the entire document, but I just want to ask you, have you seen this document before?

A Well, from the first few pages I've seen, no, but flipping through it, it looks like actually a collection of a lot of documents, some of which I may have seen, some of which I may not have. I guess I'd have to kind of look through it to see if I've seen them, but the first couple of pages, I don't recall seeing it. I may have seen some of these other documents. At least they look somewhat familiar.

Q Would you agree with me that some of the documents appear to be summaries from B.A.T. research and development conferences?

MR. STEIN: I'll object to the form of the question.

MR. DUNNE: Join.

THE WITNESS: They look like they're BATCo research conferences summaries.

BY MS. McDEVITT:

Q Are summaries prepared subsequent to BATCo research and development conferences that you've attended?

A I have not attended research and development

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conferences per se, so I don't know if there are summaries currently prepared for any conferences like that.

Q Have you seen research and development conference summaries in the course of your employment with Brown & Williamson?

A Yes, I've seen, I think I've seen at least these two that I'm looking at right now.

Q Are these documents circulated internally within the company?

A Well, currently I don't think we are actually preparing documents like this. It looks like something that was done for some period of time and then ended, so I don't see documents like this circulated now because I don't think any are being generated.

Q BATCo research and development conferences are still held, are they not?

A In specific areas, yes. I don't think there are general broad research and development conferences per se. I think that what we're doing now from my understanding is having what we call specialist meetings, so people who are a specialist within a given

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area, like there will be an analytical research conference, and all the analytical chemists will go to that. There will be a flavorist conference or a

product development conference or an applied research conference or a leaf blenders conference. So that's the way it's done now. I don't -- we don't have big research conferences like this anymore.

Q Do you know why?

A No. I think it's probably just an evolution of things. Some things come and go. That's what I assume.

Q Do you know what Project Mad Hatter was?

A Can you show me what you're referring to?

Q Sure. I'll direct your attention to the Bates number at the bottom right, 689102443.

MR. DUNNE: Let me just make sure. Has it got a 10 in the upper right-hand corner?

THE WITNESS: The page number, you mean?

MR. DUNNE: Yeah.

MS. McDEVITT: Yes, it does.

MR. DUNNE: All right.

BY MS. McDEVITT:

Q The top of the page reads Comments on nicotine.

A I've got a vague recollection, but I'll tell you I'm not certain enough of it that I really want to

speculate what Mad Hatter was. I just see from this document it may have been related to Project Hippo, but I really don't know that, so I think really the best thing for me to do is say I'm not really sure what Mad Hatter was.

Q Okay. Do you know what Project Hippo was?

A Yes.

Q What was Project Hippo?

A Project Hippo was a series of studies that were done, and it may have been to support Mad Hatter, which was, it was an early attempt to develop a reduced risk cigarette, a safer cigarette, and it was felt that it would be beneficial to do research to in addition develop a safer cigarette, to do research to demonstrate certain effects of cigarettes and/or nicotine. And those effects were basically relief of stress, reduction of stress and/or body weight reduction. Project Hippo was a series of studies that were done to measure various physiological effects of nicotine to determine if they would be at all in some way shown to be related to stress reduction and/or body weight reduction.

Q What types of tests were performed in connection with Project Hippo?

A Rats were used and administered doses of

nicotine and various measurements were made such as urine production, body weight reduction or body weight gain, food consumption, body fat content. Some basic measurements were made on organs, like the adrenal

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glands were measured for ascorbic acid content. There were also a series of experiments done to compare physiological responses of nicotine to a substance called reserpine to see if there might be some indication that they operate through similar mechanisms, and that basically was my, at least that's my recollection of the major measurements that were made. I think some other body weight and organ weight measurements were made as well.

Q Where was the research conducted in connection with Project Hippo performed?

A It was in one of the Battelle European labs, and I don't recall exactly where. I don't know if it was in Geneva or maybe Germany. I'm not sure. I know it was at a Battelle research lab, and I think they had several labs in Europe at the time.

Q Project Hippo was a BATCo research initiative, was it not?

A Yes.

Q So it was contacted out to an outside lab?

A That's correct.

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Q When was the research undertaken?

A In the early to mid '60's.

Q So it was over a span of years?

A It was over a span of maybe two to four years, I would estimate.

Q What were the conclusions reached after Project Hippo was finished?

MR. DUNNE: Object, overly broad.

THE WITNESS: The conclusions that I recall were that -- there was a series of hypotheses advanced that nicotine was operating through a particular neuroendocrine mechanism basically being mediated by the adrenal gland and adrenal secretions, adrenaline and noradrenaline, and my recollection was that they could not demonstrate the hypothesized mechanism of action. They ran a series of tests to see if it seemed to be operating through that effect.

What they did was make basic measurements of the things that I just mentioned, things like body weight and urine production, and hypothesized how nicotine may bring about those effects

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and made various tests and measures to confirm that it was operating through the hypothesized mechanism, and my recollection was that in general they were not able to demonstrate the mechanism that they hypothesized.

In the second study that I mentioned comparing the mechanistic effects of nicotine compared to reserpine, they concluded that nicotine didn't operate in a manner similar to reserpine.

BY MS. McDEVITT:

Q And what's reserpine?

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A It was a drug at the time which I think had some popularity for stress relief, to my recollection.
Q What's Project Ariel?
A Ariel was again an attempt to produce a safer cigarette. If I'm correct, it was a heat rather than burn technology to try to heat tobacco rather than burn it to produce a product, an aerosol that would be lower risk than conventional cigarettes.
Q This was another BATCo research project?
A Yes.
Q When was it conducted?
A That was also in the early '60's.

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Q The results of this project were shared with Brown & Williamson?
A Yes.
Q Toward the bottom of the comments on nicotine page we were discussing a few minutes ago, there Project Ariel is mentioned. The second sentence reads, The first samples tried gave a tremendous kick, even though the nicotine delivery was quite small. Do you know what they mean by "kick" in this document?
A No. I could only speculate. I don't really know what they mean because I don't know how that was assessed.
Q Was the research for Project Ariel conducted in-house at BATCo or was this contracted to an outside laboratory?
A I don't really know exactly who did all the research.
Q What were the conclusions of this project?
MR. DUNNE: Object, overly broad.
THE WITNESS: They got to the prototype stage. They had some concepts, got to the prototype stage, but they really couldn't get anything to work. They ran into a couple of technical failures and didn't really get a working

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prototype that would be acceptable at all as a consumer product, so basically it sort of ended.
BY MS. McDEVITT:
Q Has Brown & Williamson or BATCo developed any other combustionless products?
A Well, what do you mean by combustionless?
Q Well, like Project Ariel, you know, heated rather than burned, a product that's not burned.
A So are you asking me if we looked at that strategy before as a reduced risk? Yeah, we have done that and we're currently looking at that.
Q Were there any other projects that were tested in prototype, combustionless products tested in prototype?
A Well, at some point I'm not sure when I'm getting into sort of trade secret information, depending on how far we go with the questions. If we pursue this, can I talk to my counsel?
Q Absolutely.
A Can we do that now? You want to pursue that now before I get further into what we've done or what

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we're currently doing?
MS. McDEVITT: We might as well, now that we're here.

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(A recess was taken.)
MR. DUNNE: With respect to current activities, I'm going to object and instruct the witness not to answer on the basis of trade secrets; however, certainly you are free to inquire with respect to historical research and development of those areas.
MS. McDEVITT: Right. Before I go on to that question, I just want to make a statement for the record.
Earlier in this deposition when we were talking about stipulations early on, we referenced an agreement that all of the parties in this room to this cross-noticed deposition have with respect to which counsel will be representing the witness at which time, and I just want to make sure that that understanding is still in place. There have been a few instances now where I've heard or seen counsel from Kirkland & Ellis whispering objections, and I'm just going to note my objection to that behavior during my examination in the Blue Cross case of this witness.
MS. FOX: I'm just going to state

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on the record that I haven't been doing that.
MR. DUNNE: If she's done it, I haven't heard it, and I haven't followed anybody's instructions but my own.
MS. McDEVITT: I'm certainly not suggesting, Kevin, that you are following the instructions or the whispers, but I mean I'm sitting right here, and both of us are observing it, so --
MR. DUNNE: I'm sorry, I didn't notice it. I certainly --
MS. FOX: I'm just going to state for the record that I haven't been doing that.
MS. McDEVITT: That's fine. All right. Well, I trust it will be under control at this point.
MR. DUNNE: I'll continue not to listen to anything that Deirdre Fox says.
MR. BROAS: I vote for a muzzle.
MS. FOX: Or doesn't say.
MR. DUNNE: Or doesn't say.
BY MS. McDEVITT:
Q Dr. Appleton, consistent with your counsel's

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instruction not to answer questions on the development of combustionless products that are currently underway or that might be protected by some trade secret objection, can you describe for me past research that

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Brown & Williamson or BATCo has undertaken in this area?

A Well, the one project that I'm familiar with -- well, first of all, let me say we pursued many strategies for reduced risk cigarettes, one of which is heat rather than burn technology.

The first one that I'm aware of I've already described, which is Project Ariel, sort of early '60's, but then my recollection is that in the early to mid '80's, we also pursued a similar concept. I think it might have even been trying to advance the technology and the learnings that we had gained from Project Ariel, again in another attempt to develop a product that would be hopefully viewed as reduced risk. And that's two projects that I recall specifically in the past that employed that particular strategy for risk reduction.

Q With respect to the second project you mentioned, what were the findings or results of that one?

A That one also ran into some technical

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difficulties, and at Brown & Williamson's hands, my recollection is that some of that, some of the basic fundamental work needed to advance that project was then moved to, back to Southampton, where the expertise, where there were more expertise to continue on the basic fundamental building blocks of what would be needed to advance that project.

Q Is any biological research conducted in the United States at Brown & Williamson?

A We contract work. We don't actually do anything in our own facilities.

Q Why don't you do anything in your own facilities?

A We don't have the expertise and the equipment. It's much easier to just identify specialists in that area and contract the work out.

Q You contract the work out domestically?

A Yes.

Q And overseas as well?

A We have had work done overseas. We've asked Southampton for help on a couple of occasions where they had the expertise or they had access to contract facilities to get specific things done.

Q Now, before the break you had spent some time or we had spent some time discussing a number of

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research initiatives undertaken by BATCo that have to do with nicotine research; is that correct?

A Yes.

Q And with respect to all of these, and I guess the ones I can recall are Mad Hatter and Hippo, and we spoke about some research at Battelle earlier. Was that different from Project Hippo?

A It was all part of it.

Q All part of it?

A Yeah.

Q Okay. And none of this research was shared with the public; is that right?

A To my knowledge, the information, it

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was -- we were doing internal research, and it was kept internal.
Q Right. And it wasn't shared with the government or any regulatory body; is that right?
A Not the government or regulatory bodies. We did have some of the Hippo research reviewed externally by external scientists, but not a government body.
Q External scientists who were retained by BATCo specifically to review the research?
A I'm not sure what the exact arrangement was, but they were asked to review the research, the Project Hippo research.

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Q Was it on a confidential basis? Do you know?
A That I don't know.
Q Now, in reviewing your report, which we marked some time ago as Appleton Exhibit 1, I note that you do not discuss any of this nicotine research; is that right?
A That's correct.
Q Why is that?
A Well, probably for the same reasons why anything pertaining to addiction or nicotine isn't part of my report. I think really it's sort of a legal question as to what my status is as a witness and what I was expected to testify to, but I'm prepared to answer whatever questions you ask.
Q So it's your understanding that the parameters of your expert testimony are to focus on BATCo and Brown & Williamson research initiatives, excluding nicotine research; is that right?
A I wouldn't assume it's excluding it. It may not have been included, but I thought my report said something like it could be amended at any point to include or to supplement it to address whatever issues may come up.
Q Oh, it certainly does say that.
A Okay.

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Q So do you consider yourself to have expertise in the nicotine research that was undertaken at Brown & Williamson or BATCo?
A I am familiar with it and I have expertise in the basic science and the scientific methods, the pharmacology and the science that was used to conduct that research.
Q But in the -- do you consider yourself to have expertise in the actual history of that nicotine research?
A To some extent, in that I --
MR. STEIN: I'll object to the form of the question.
THE WITNESS: I'm familiar with the research that was done. I've reviewed a lot of documents, both reports and to some extent the dissemination and the sharing of that research. All of the history, I don't know if I know that. I mean, I wasn't there when it was happening, but I'm familiar with the science, with the studies that were done, with the technical

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reports, the methodology used to do that research. I am familiar with that.
BY MS. McDEVITT:
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Q Turning to your report, which we marked earlier as Appleton Exhibit 1, and turning to page 11 of that report under the heading that BATCo and Brown & Williamson conducted biological research in search of an acceptable cigarette design, you write about a variety of different types of biological research undertaken by Brown & Williamson or BATCo, and one of the first is ciliastasis tests.
A Correct.
Q Can you describe what those tests are?
A Yes. Cilia are little hair-like projections, and I guess I'll use my fingers as an example, that line the respiratory passages of a respiratory tract, and they can sort of beat back and forth, and a combination of the beating of cilia along with secretion of mucus is a defense mechanism for clearing foreign materials that might be inhaled in the lungs.
It was believed that smoking inhibited that process, it impaired the basic clearance mechanism, and that this could be a basis for how cigarette smoke may contribute to lung disease by inhibiting the clearance of such materials, so it was felt to be at that time very important to understand the extent to which tobacco may inhibit that process.
And in an effort to understand different
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cigarette design parameters and how the different design parameters might contribute to that process or if there might be a way to identify parameters that could be either augmented or decreased in order to minimize that effect, there was an effort to develop a test that could be used to measure different product design parameters to try to discover which parameters might be contributing to that process and which ones might not, ultimately in the hopes of designing out things that were unfavorable from that perspective and bringing in design features that would minimize that effect.
So at that time, that was thought to be very important by the scientific community, and so that was being pursued as a measure of progress in a product modification program.
Q These tests were undertaken during the mid 1960's; is that right?
A Yes, I believe so.
Q The findings of the ciliastasis test were described as, in your report, beset with enormous complexities. I'm reading from page 12.
A Right.
Q Which made it impossible to produce a modified cigarette, the sentence goes on, which would
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in fact consistently produce lower biological activity.
A Right.
Q Were the ciliastasis findings ever published

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or shared with the public?
A Well, this sort of work had been already done. By the time we were employing these tests, such measurements had already been made on tobacco products by scientists and had been published in the open public literature, so the fact that cigarettes could produce this effect was already known to the public and published, and that's why we were actually adopting this test, but the findings of us testing various product parameters to try to discover which product parameter might influence a test result in a particular way, that wasn't shared to my knowledge.
Q The ciliastasis research was conducted through BATCo?
A Yes.
Q And not at Brown & Williamson?
A Correct.
Q Was it actually done in-house at BATCo or contracted to an outside laboratory?
A That I don't know.
Q It sounds like what you're describing then is

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that BATCo was attempting to replicate research that had already been undertaken.
A No. The research that had been undertaken had shown that cigarettes seemed to inhibit this process of clearance, so there was no need to replicate that. It was already something that was known and out there.
What we were doing is employing that as a measure to discover if we altered the product in various ways, to discover which product characteristics seemed to contribute most to that effect versus not so that we could know what product design parameters were important and to hopefully remove or eliminate, to the extent that they were contributing to this effect, which was thought to be very important.
What we ran into is that you could have a range of product design parameters, like products made of different types of tobacco or with a filter versus without or with a different cigarette circumference or something like that and get a difference ranking of products in one test, but then if you went with a different ciliastasis test, the ranking might all change, and so there was a lot of uncertainty as to whether or not you had really achieved something, because the tests weren't really agreeing with each

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other and they were presenting some difficulty.
So the purpose wasn't to determine or verify that cigarettes could do this, but rather to determine if various changes in design parameters had an effect and to determine which ones did, ultimately with the purpose of optimizing the cigarette design to minimize that particular type of effect.
Q You're basing your opinion on the ciliastasis research on your review of internal BATCo documents; is that right?
A Primarily, but not solely own that. I'm also --
Q What other sources are you basing your

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opinion on?
A Discussions with BATCo scientists and my just general experience of how one approaches safe cigarette research, what the process is that one goes through. I'm familiar with that from my own experience, and then I review the documents and see that they're going through a similar process, and I've also discussed this with BATCo scientists as well.
Q Do you believe there's such thing as a safe cigarette?
A At this point no one really knows what cigarette design parameters are important or
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contributing to the effects of cigarettes on health effects. No one knows which constituent in cigarette smoke might be important or what tests need to be applied in order to verify or measure that, so at this point I would say there isn't really a consensus view within the scientific community as to really what constitutes a safer cigarette or how to develop one.
Q You also on page 13 of your report, second full paragraph, reference BATCo's performing long-term mouse skin painting research, which I guess is referred to as Project Janus, J-a-n-u-s?
A Yes.
Q And that was carried out in Germany through Battelle?
A Yes.
Q Your opinions on the history of Project Janus are based on your review of internal BATCo documents?
A The same things that I had mentioned for ciliastasis, the review of the documents, discussion with scientists, and just general familiarity with how this issue has been approached, not only within the industry, but also externally.
Q What is Harrogate? Do you know?
A Harrogate is a laboratory research facility that was associated with the U.K. tobacco
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industry's -- I forgot the exact name of the group, the Tobacco Standing Committee or something like that. It was commissioned as an effort to respond to the smoking and health issue in the '50's by the U.K. tobacco industry which had a grant research element as well as a laboratory research element, and Harrogate was the laboratory research operation, as I understand it.
Q So BATCo participated in funding the Harrogate laboratory research operation?
A Yes.
Q Were mouse skin painting research activities carried out at Harrogate to your knowledge?
A Yes.
Q In your opinion, what were the results of the mouse, the Project Janus mouse skin painting research project?
A Well, at least for that measure that was used, and there is some question as to what mouse skin painting results mean as far as human risk is concerned, it did show that some cigarette design parameters can alter biological activity to some extent, but it wasn't that large of an extent, so it's

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not clear what that might mean.
There are also a couple of examples where if you looked at a particular cigarette design parameter
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in one type of mouse painting test and then took it to a different laboratory and maybe altered the methodology slightly but not to a great extent, you might not get the same result. It might be difficult to replicate it, so -- and again, the intent wasn't to demonstrate that tobacco had biological activity in this test. That had been done, had been published, was in the open literature, but it was used as a measure to try to distinguish products.
I would say it showed ability to distinguish products to some extent, but I don't believe that there is a scientific consensus about what that means about at this point if you get a difference in biological activity of 30 or 40 percent, I don't believe that there is a consensus within the scientific community that that necessarily means that it will translate to a difference in risk to humans. So it showed some things, which is ability to distinguish products, but there's still uncertainty as to what that means in terms of risk to humans.
MS. McDEVITT: We're going to, I'd like to mark this document as Appleton Exhibit 7.
(Appleton Exhibit No. 7 was marked.)
MR. DUNNE: I think what may have
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thrown you off, I realize this now, I am letting Deirdre Fox look at these documents when you send them over to me. We're not communicating about them, however, I want you to know.
MS. McDEVITT: Okay.
MR. DUNNE: In other words, she didn't have a copy in front of her, so I was letting her look at my copy, but we're not talking.
THE WITNESS: I'm just reading to see if I've seen this document before.
BY MS. McDEVITT:
Q Sure.
A Okay.
Q Doctor, have you seen this document which was marked as Appleton Exhibit 7, a two-page document to Mr. Finch from A.Y. dated October 8th, 1965?
A Yes, I have.
Q Under what circumstances did you see this document?
A When I was testifying in the Minnesota AG case.
Q I'll just note for the record that this document bears the Bates numbers 680204121 through 22.
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MR. DUNNE: And as with other Blyley documents, I'd just note for the record our objection as to the attorney-client privilege of the document, and certainly

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you can ask the questions under the limitations set forth by the Court. We want to preserve our objection and also make sure this portion of the deposition is sealed.

BY MS. McDEVITT:

Q Do you know who Mr. Finch is or was?

A No. I may have at one time, but I don't remember now.

Q Do you know what the initials on the second page, A.Y., stand for?

A I assume it's Addison Yeaman.

Q Who is Addison Yeaman?

A I believe at the time he was chief counsel for B&W.

Q The document notes in the second full paragraph on the first page that Harrogate has been very active in testing biologic activity of smoke condensate on the shaven backs of mice and goes on to state that, in the third paragraph, substantially all Harrogate has accomplished up to now is validation of

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the work of Wynder, et al. in the general area of biologic activity of smoke condensate. It goes on to state that publication of this material, while adding nothing new of a damning nature, would have the effect of dignifying and confirming the significance of the Wynder type work. Who is Wynder?

A I assume that he's referring to Ernst Wynder of the American Health Foundation.

Q He was undertaking mouse painting research around the same time, wasn't he?

A Yeah. Actually I think he did it considerably earlier than this time, but he had -- he was one of the first scientists to do mouse skin painting studies and report that smoke condensate produced tumors under those conditions of testing.

Q The document goes on to suggest that, toward the end of the first page, that -- and going on actually onto the second page, that, in the last paragraph, it would be far easier to influence the tone and even the context of the report referred to on the first page before it is written than it would be to rewrite a completed report.

Are you aware of allegations that members of the tobacco industry engaged in editing scientific research before it was published.

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MS. FORBES: Object to the form.

THE WITNESS: I've heard those allegations.

BY MS. McDEVITT:

Q Do you have any firsthand knowledge of such activity?

A No.

Q Have you discussed these allegations with anyone at Brown & Williamson in general?

A Yeah, just my fellow scientists, you know, my peers.

Q What did you say to them and what did they say to you?

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A Well, I mean, it's been discussed because it's come up in the press and so many other contexts. It's not been within my experience that that's happened. I'm familiar with this document, but that hasn't been my experience. I wasn't with the company in 1965.
Q Have any of the other tobacco industry scientists expressed a contrary experience to your knowledge?
A No. I mean, I haven't had that much discussions with other tobacco industry scientists about this as I have with Brown & Williamson. I mean,
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I can say that these results were published that they're referring to in this document.
Q What were the results?
A The study they're referring to is described in paragraph two. They were testing whether or not what they call instant condensate -- when you collect smoke, it's a difficult process. You have to draw cigarette smoke through a filter pad and then dissolve that what's called condensate from the pad into a solvent, and that's a time-consuming process, and for practical reasons, that's done where it's collected and stored for some period of time and then you can test it after it's stored.
Instant condensate would be material that's collected and immediately applied to mouse skin, and there is a theory that perhaps that might make a difference, because it's possible that as the material is stored, chemical reactions could occur, and some species in the condensate disappear while others might be formed through chemical reactions and that aged or stored condensate may not have the same effect as so-called instant condensate, so this was a test to determine whether or not there's any difference in the biological activity measured between instant condensate as opposed to condensate which had been stored.
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Basically they found no difference. If anything, they may have found that the instant condensate might have been a little bit more active. And that was the study, and the study results were published.
Q Did Project Janus test stored condensate?
A I don't recall. I'd have to go back and double check that. In the end, this result would suggest that it wouldn't matter, because they had basically comparable activity.
Q You next turn to in your expert report, which is Appleton Exhibit 1, on page 13, you next turn to a discussion of BATCo's short-term inhalation experiments which were conducted under contract with Battelle Labs. Again, I take that to mean that these experiments were not conducted in the United States at Brown & Williamson; is that right?
A That's correct.
Q What was Project Atlanta Hilton, if you know?
A Atlanta Hilton was again, it was another effort to try to develop safer cigarettes or reduced risk cigarettes. That was a project that was carried out in the United States by Brown & Williamson, and it

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was again, like so many of these other ones, attempts to look at cigarettes that had a wide range of design features and use some measure, some test, some
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biological test to try to rank them in hopes of discovering cigarette design parameters that were associated with more activity as opposed to less activity with the intent of optimizing those parameters that would reduce activity. In this particular case, some acute toxicity inhalation studies were done on smoke from different cigarette products, and that work was contracted by Brown & Williamson.
Q It was contracted to Battelle in Ohio; is that right?
A I think it -- yeah, that's my recollection, but I'm not certain. But I think it was Battelle Columbus.
Q Those experiments were carried out on hamsters; is that correct?
A I thought it was mice, but I don't recall. I'd have to review it.
Q But that's not the same project that you're discussing at page 13 onto 14 of your --
A No, because --
Q -- expert report in --
A -- these studies here --
Q -- the Blue Cross case.
MR. DUNNE: Let her finish the question. I'm sorry.
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THE WITNESS: Okay.
BY MS. McDEVITT:
Q But that, meaning Project Atlanta Hilton, is not the same research that you address on page 13 and 14 of your expert report in the Blue Cross case?
A On page 13 and 14 we're talking about six- to twelve-week studies that were done in the early '70's.
Q During the 1970's and 1980's?
A Right. Project Hilton were acute studies. They occurred over a period of hours, not weeks.
Q Okay.
A And those were done in the '60's.
Q Getting back to the six- to twelve-week studies that you discuss in your report, what were the findings of those studies?
A Well, we replicated what had already been reported in the public literature, which is under these conditions if you expose animals to cigarette smoke for extended periods of time, then you get a certain array of pathological changes in the respiratory tract, so having confirmed that, attempts were made to try to, as with the previous research, discern various cigarette design parameters that might contribute to biological activity with the intent of optimizing the cigarette design.
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Q Did you share publicly that you had replicated this research?
A Not to my knowledge.
Q We then move on in your report on page 14 to

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BATCo's use of Ames testing.
A Yes.
Q Now, Ames testing observes biological activity tested on certain strains of bacteria; is that the way it works, Doctor?
A Basically, yes.
Q Salmonella bacteria?
A It looks at a very specific end point and a particular strain of various strains of salmonella.
Q And Project Rio was such a test or such a research study?
A It was a project employing primarily the Ames test for very similar objectives, which was to test a wide array of cigarette products which employed a wide range of design parameters to try to characterize what the range of responses would be in hopes of optimizing cigarette design parameters to minimize that biological activity.
Q What were the results of this line of research?
A Well, what it showed from my recollection was

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that the activity that is measured in this test was primarily driven by the types of tobacco, that some tobaccos, particularly burley tobacco, had a higher response in the Ames test than flue-cured tobacco, and that activity correlated largely with total blend nitrogen content, I think were the major findings.
Q Is an Ames test alone sufficient from a toxicologist's perspective to draw any conclusions, or does that type of test need to be used in conjunction with other types of research?
MS. FORBES: Object to the form.
THE WITNESS: It depends upon what type of conclusion you're trying to draw. If you're trying to draw a conclusion as to the potential for cigarette smoke to induce mutations in salmonella, then it's appropriate. If you're trying to draw a conclusion as to whether or not a particular cigarette product may produce disease in humans, I would regard it as not being adequate in itself.
BY MS. McDEVITT:
Q And Project Rio, the objective of Project Rio was the latter?
A Project Rio had several objectives. One was

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in response to an anticipated potential regulatory requirement to possibly rank products or publicly state what the activity of the cigarette was in this particular test. And it was also conducted in part to respond to the smoking and health issue using a test which at the time was felt to be very important and relevant to cancer development.
Now, the view about the relevance of that test insofar as cancer is concerned has changed since the time that that test was employed as a result of further validation studies that have been done using the Ames test. At the time, though, just like a lot of these other measures, it was felt to be potentially a

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relevant measure, as was the ciliastasis test and the skin painting test and inhalation, so it was really done with several objectives in mind.

Q When you refer to an anticipated regulatory requirement, what country are you referring to?

A I'm not even sure. From my review of the documents and discussion with scientists, just as currently cigarettes -- there are some countries that require tar and nicotine yield measurements and then publication of figures of what those rankings are among cigarettes. It was felt, at least by BATCo scientists, that this might be something that would be required, I

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presume in Europe, but I don't really know, and I'm not sure what their basis was of expecting the possibility that this might occur. There might have been activity going on in some health committee where it was raised and suggested that this might be something -- and things like that happen from time to time.

Q Is the Ames testing that you discuss on page 14 of your report performed in connection with any other types of tests or was it just Ames testing alone?

A For Project Rio, I believe it was only Ames testing alone, but it can be combined with other tests.

Q Has Brown & Williamson or BATCo combined Ames testing with other tests?

A We have used Ames testing in conjunction with detailed smoke chemistry as a screen for products to just know where they stand and where they would rank in those particular measures.

Q Were the results of Project Rio released to the public?

A Not to my knowledge.

Q Did you test or did you undertake the tests that we've described or that we've discussed so far, the ciliastasis and the mouse skin painting and inhalation and Ames testing, using the assumption that smoking caused disease?

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MS. FORBES: Object to the form.

THE WITNESS: Well, we certainly recognize the statistical association and were attempting to be responsive to the issue. Now, I mean, a lot of these tests and things we've discussed in this report go back quite a way and span quite an amount of time and tenure of various scientists and directors and so forth, so I don't know if I can really speak to what was in their mind and what they were assuming at the time, but I would say that it certainly was an attempt to be responsive to an issue that was felt to be important by the public health community.

BY MS. McDEVITT:

Q Did BATCo or Brown & Williamson ever attempt to rank their products solely on the basis of Ames test results?

A I'm not sure I follow what you're saying.

Q Well, rank -- were Ames tests performed on specific Brown & Williamson or BATCo products, like for

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example, a, you know, a Lucky Strike cigarette as opposed to a Kentucky reference cigarette?
A Yeah, there have been tests done on
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commercial products, Ames testing done on commercial products.
Q Was Project Rio such a study?
A I don't recall if Project Rio -- I thought Project Rio did test actually commercial products. I mean, that's my recollection of it.
Q Do you believe that that form of testing, meaning Ames testing, alone would have scientific credibility?
A At this point, I don't think we can say that. I think if you asked, you know, a member of the scientific community or a toxicologist, I don't think they would say that we know what that means, particularly when you, you know, look at the fact that on an Ames test, for example, burley tobacco may result in higher activity than flue-cured, but on the mouse skin painting test, you know, you get the opposite result, so you look at the totality of the evidence and the smoke chemistry and so forth, and you get a real mixed picture. It's very difficult to draw a conclusion that that would mean more or less potential health risks to humans.
Q Are research documents created by Brown & Williamson in the United States stored in the United States?
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A Yes.
Q Any records sent to the U.K. for safekeeping?
A Well, copies of some documents are distributed to the U.K., but I don't believe the only and sole original record is sent there. But we distribute documents back and forth to each other.
Q So are you aware of a Brown & Williamson or BATCo policy that would require Brown & Williamson scientists in the United States to send their research abroad for storage?
A For storage? No. As I said, we share information back and forth, but I'm not aware of a practice where we send our only or sole record or original record for storage.
Q Have you ever been asked to destroy any research or documents during your tenure at Brown & Williamson?
A No.
Q Have you heard allegations that such requests were made in the past?
A Yes.
Q Did you investigate those allegations on your own?
A I wouldn't call it a systematic investigation. I mean, I've discussed these sorts of
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things with my peers, you know, and colleagues at work. I don't think I would call that investigation.
Q What was the substance of your discussion?
A Just looking at the allegations and

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discussing it. I mean, it was really more conversation rather than a probe or anything like that.

Q Did anyone tell you that they had been asked to destroy research or documents --

A No.

Q -- at Brown & Williamson?

A No.

Q What about at BATCo?

A No.

Q Have you heard those -- did you ever discuss it with scientists at other tobacco companies?

A No.

Q As a scientist, what would be your reaction to being asked to destroy data?

MR. DUNNE: Object, lack of foundation, speculation, incomplete hypothetical.

Go ahead.

THE WITNESS: Well, I suppose it would depend on the circumstances. If it was the only and original record, I would

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certainly question why, but it would be hard for me to really react to that without knowing a little bit more about what the circumstances of such a request would be.

BY MS. McDEVITT:

Q What research projects were ongoing when you joined Brown & Williamson in 1991?

A Well, I'm not sure I'm aware of all research projects that were going on. From what I saw, it was largely sort of traditional cigarette product development at Brown & Williamson. Now, I'm not talking about BATCo. And we were also just finishing, sort of at the tail end of some work that was responsive to the smoking and health issue, and it was sort of tracking along with some work that Reynolds was doing as well with Premier at the time. Those were the major activities. We were beginning to look at the possibility of measuring smoke constituents and we were continuing on with sort of traditional things, but also charcoal products, low-tar products and more conventional cigarette products.

Q When you were at R.J. Reynolds, did you work on the Premier research?

A Some aspects of it.

Q What aspects of it did you work on?

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A Mostly assessment of the ingredients, primarily the flavor ingredients that went into the product.

Q For the record, what is Premier?

A Premier was a name given to a product developed by RJR to respond to the smoking and health issue. It was a product that employed the strategy of heat rather than burning tobacco.

Q To your knowledge, was Premier a successful product?

A Well, it was a technical success in that products were made. They achieved the technical objectives of the project, but it wasn't a commercial

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success in that it didn't achieve any great degree of sales.

Q It's no longer on the market to your knowledge?

A No.

Q Have Brown & Williamson or BATCo undertaken any research relating to chromosome damage?

A Yes, some work has been done on that.

Q When has that work been conducted?

A Well, some is being done right now. I'm not sure exactly when it began. It -- well, if it paralleled what we did with Ames activity, I assume it

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sort of tracked along the technological availability of such tests, which have really been since the late '70's and mid '80's.

Q Has that research taken place in the United States through Brown & Williamson?

A No. It's been primarily by BATCo.

Q BATCo. What are the names, if you can recall, of the chromosome damage research projects?

A Projects, I don't know. I can tell you the sort of tests that have been employed, and I don't know if they've been employed in association with specific projects or just screening products.

The most commonly employed test was chromosomal aberration test and more recently a test that achieved similar results but supposedly some additional advances are the micronucleus tests, and that's being explored right now.

Q What does a micronucleus test involve?

A It measures, it exposes cells to -- you expose mammalian cells to a test agent, in this case it would be cigarette smoke condensate, and let it incubate for some period of time and then do special stains and look for evidence of damage to chromosomes.

Q Have any results been revealed as to this research?

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A None that I'm familiar with. That particular one is sort of in exploratory phases right now. It's currently being developed and validated just to see if it even works with cigarette smoke.

Q Is this research that's also being undertaken in the scientific community?

A Yeah, it is. And it's, at this point we're -- I mean, it's a test that's been around for a while for individual chemicals, but only recently employed for tobacco products, and at this point we're really in the methods development, sort of methods development and validation stage, so there isn't -- we haven't begun looking at it as a measure of products per se.

Q Do you have any personal involvement in the micronucleus test?

A We're looking at trying to develop that test or getting contract labs to develop that test for us as well. We're in the process of working with laboratories to develop the capability to use that test, and so we're planning sort of validation studies of our own, so we're in the planning stages at this

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point in the United States.
Q You personally or Brown & Williamson?
A Brown & Williamson, but it's my department
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that's doing it.
Q Okay. So you're overseeing efforts to commence that research in the United States?
A That's correct.
Q Is there a time frame attached to your efforts?
A Well, we've got samples that we'd like to test right now. We need to make sure that the laboratory has the appropriate cultures of cells that we'd like them to use. We're developing protocols as we speak, and we expect to have some initial validation tests done hopefully within two or three months.
Q Are there any plans to make public the results of this research?
A Well, to the extent it's publishable, I imaging we would. Right now we're only in the validation stage, so I don't think that what we're doing would be considered publish worthy. I would be surprised if a journal would accept it, but I presume we would make public our results, however we intend to apply the test, if it's something that's worthy of publication. That would be a noteworthy finding for the scientific community.
Q Has Brown & Williamson published any of the research we've been discussing this afternoon?
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MR. DUNNE: Object, overly broad.
THE WITNESS: Brown & Williamson has published a lot of research. Some of the chemistry work in particular has been published and presented at various scientific meetings and is therefore publicly available, but I mean, in a lot of these things you've asked specifically was that publicly available, and in those cases, not to my knowledge.
BY MS. McDEVITT:
Q Has any of the various research projects which are described in your expert report beginning on page 11 through the top portion of page 16 been published?
MR. DUNNE: Object to form.
THE WITNESS: Up to what page?
BY MS. McDEVITT:
Q The text which ends right before you start on Additives Assessment on page 16.
A This one study that was -- well, this wasn't a Brown & Williamson study. Of the things that are mentioned here for Brown & Williamson and BATCo, I'm not aware that this work was published. There's mention here of the tobacco working group, but that
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wasn't BATCo research. That was the NCI. Some of that work was published.
Q I guess in the last sentence of the carry over paragraph on page 16, you note allegations that

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research reports were not sent to Brown & Williamson and/or returned to BATCo, and as a result of some of this publicity anyway, Brown & Williamson scientists audited its collection of research records and concluded that, with some exceptions, all of the records of the jointly sponsored research that were circulated by BATCo to Brown & Williamson over time are located in B&W's R&D facility. Were you personally involved with that audit?

A No, I wasn't.

Q When did this audit take place?

A I would say probably about three years ago.

Q That's around 1997?

A Probably around that time frame.

Q Can you describe the facts and circumstances surrounding this audit?

A In general terms, I can. As I said, I wasn't directly involved in it, but from my understanding of the way it was conducted, and I've talked with the person who did it, BATCo has a printout or can generate a printout of all reports that it generates under sort

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of its group wide research effort whereby reports that it generates that are shared with all the group companies have been distributed, and that printout was generated and then compared against our library's holdings and/or what's in people's files, and it was a one-to-one comparison in that only a very small number or a very small percentage of total reports received from BATCo over the time period of the audit were not identified, and that for those documents that were not present, there wasn't any particular pattern in terms of author or content or projects or anything like that. They were just things that apparently slipped through the cracks over time.

Q Who was responsible for this audit?

A Hugh Honeycutt was the primary person who conducted the audit.

Q He's one of the directors --

A That's correct.

Q -- at Brown & Williamson? Was a written report generated after this audit?

A Not to my knowledge

MS. McDEVITT: I'm going to switch topics. If you want to break now, it's probably a good time to.

(A recess was taken.)

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THE WITNESS: Yeah, I'd like to make a correction. On the question you asked me, has a report been prepared about the audit and I said no, I took that question to mean has sort of a final write-up been prepared, but there are records that are related to the audit, and I can refer you to them in my reliance list.

BY MS. McDEVITT:

Q All right.

A Going to page 17, for example, fourth item down, summary exhibit, comparison of BATCo reports

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issued to B&W to BATCo reports in B&W's files, 1980 through 1993, and then you'll see bits and pieces of records that relate to this audit sort of scattered through the page before and page after, like the one, two, three, four, five, six, seven, eighth item down, cover pages of 1985 BATCo RD and T reports.

MR. DUNNE: What page are you looking at?

THE WITNESS: Seventeen. On page 16, the third, fourth and fifth items from the bottom I believe are also records that relate to the audit. And there's probably

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some others scattered through here too, so it's sort of in bits and pieces.

BY MS. McDEVITT:

Q All right. Thank you. When you joined Brown & Williamson back in May of 1991 --

A Yes.

Q -- did you do any investigation into the company's research history?

A Somewhat, but I wouldn't regard it as a systematic investigation. I went through sort of a company orientation, and that included talking to various people in various parts of the company on what they did, and some of that included history, historical activities, but it wasn't a sort of a focused investigation on history of research per se. But I did come across some historical documents and activities.

Q Who did you speak to at the company during this orientation?

A All the senior managers in R&D, a number of people in manufacturing. I probably spoke to a couple of people at BATCo. Those would be my principal contacts, I guess.

Q And what was the purpose of these conversations?

A Well, mostly it was sort of a corporate

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orientation, which is to learn about what B&W does, how they're structured, how they're organized, what the major departments are, who's head of those departments, what their major activities are, that sort of thing. It was, I would regard it as sort of a standard orientation as to what the company's activities are.

Q Did this orientation last more than one day?

A Oh, yeah. I mean, it involved going around and meeting different people at different times. It sort of proceeded -- it wasn't continuous, but it proceeded over probably a four- or five-week period, but it would be, you know, go visit this person on this day and maybe nothing else that week, and then maybe visit another person and so on, just sort of touching bases around major parts of the company and visiting people and talking to them about what they did.

MS. McDEVITT: I'm going to mark a document as Exhibit 8. This will be Appleton Deposition Exhibit 8, and I believe it's a Blyley.

MR. DUNNE: Oh, thank you.

(Appleton Exhibit No. 8 was marked.)

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MS. McDEVITT: For the record, while you review this document, Dr. Appleton, we've just marked as Exhibit 8 a multipage

document reflecting handwritten notes bearing the date 5/21/91 at the top, beginning Bates number 566411932 through 53.

MR. DUNNE: And also for the record, we are not waiving the privilege with respect to this document. We still object to the court order, and this portion of the transcript to the extent that it talks about the Blyley document should be sealed, and there are certain restrictions on the inquiries that can be permitted here, and we'll go on a question-by-question basis with respect to those.

BY MS. McDEVITT:

Q Have you had a chance to look at Exhibit 8, Dr. Appleton?

A I've flipped through it and given it a superficial review.

Q Have you seen this document before?

A Yes, I have.

Q Can you identify this document for me?

A These are notes that I took when visiting Shook, Hardy & Bacon, the law firm. It was during my orientation period, and this was a review of basically

where we are on legal activities, particularly litigation.

Q Shook, Hardy & Bacon represents tobacco companies in litigation, doesn't it?

A Yes.

Q Not Brown & Williamson to your knowledge, does it?

A Well, I think they have. I don't know if they currently do now, but in the past they have.

Q Were you requested to attend this meeting at Shook, Hardy & Bacon by someone within Brown & Williamson?

A I assume so, but I don't recall exactly who.

Q But you recall a request being made to you?

A Yes.

Q And you travelled to Kansas city to attend this meeting?

A Yes.

Q How long did this meeting last?

A I think it might have been two days. I don't recall, but I think -- I know it was more than one day.

Q With whom did you meet at Shook, Hardy & Bacon?

A It was a variety of people. I don't remember all their names. Different people came and gave

presentations and/or sat down and discussed with me different topics and different subject matters.

Q What did you understand the purpose of the two-day meeting at Shook, Hardy & Bacon to be?

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A To basically get an overview of the company's litigation activities, what is the history has been in the past, present, what the main theories are that plaintiffs have pursued and what sort of has been our defense response.
Q Was it explained to you why it was necessary that you be given this overview?
MS. FORBES: Object to the form.
THE WITNESS: My understanding is it was part of my overall orientation to know what was happening in different parts of the company.
BY MS. McDEVITT:
Q Do you know whether other scientists at Brown & Williamson have engaged in similar meetings --
A No, I don't.
Q -- with outside counsel?
A I don't know if they have or not.
Q Did you make any other notes from the two-day meeting at Shook, Hardy & Bacon?
A Not that I recall. This was probably my
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complete notes.
Q If you turn to the third page of the document we marked as Exhibit 8, there's a note which reads B.A.T. funded research at Battelle Institute in Frankfurt. There's a name, Beth, I can't read the last name, written next to it. Does that refer to the person who was speaking when you took these notes?
A It may. I don't remember -- if it is, I don't remember the person, but it may be, who gave the presentation or who was speaking to me.
Q Toward the bottom of this page, there's a note which reads dash, conclusion, dash, that smoke was a promoter and complete carcinogen. Can you tell me what that statement or note you made is in reference to?
A Let me read the preceding thing --
Q Sure.
A -- so I can see if I can understand the context. From the context of this, of the notes, it looks like a conclusion was made, and I'm not sure whose conclusion it is. I don't know if it was a conclusion of the investigators of the study. I assume it was, but I can't tell from this document. I don't remember.
It looks like the purpose of the test was to
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determine in the hamster laryngeal test what might be a mechanism of action of cigarette smoking, was it acting as an initiator or a promoter, and from the results of the test and from my note here, it appears that a conclusion was made that soaking in this particular test under the conditions of this test was acting as a promoter and it looks like and complete carcinogen.
Q Was this information that you knew prior to the meeting?
A Well, I was aware that work like this had been done, and not only in this model, but other models in the mouse skin painting model. In fact, initiation promotion research or the concept of initiation and

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promotion in carcinogenesis originally came from the mouse skin painting model, so I was aware that work had been done in other models. I wasn't necessarily aware that it had been done in the hamster model, but I think work like this had been done possibly as early as the '50's.

Q So you were aware of work like this that had been done?

A Yes.

Q But you can't testify as to whether you were aware of this specific study?

A I don't recall, no, if I was aware of it or

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not specifically.

Q Do you know whether this study was published?

A No, I don't know if it was or not.

Q The reference next to item one, 150, symbol for male, SGH, does that refer to Syrian golden hamsters?

A I would assume that it does. I'll just make another note here. It says that two people Karve and Koster, published this work. I assume that that refers to this study, but I don't really know for sure if it does.

Q All right.

A So it may very well have been published.

Q Turning a couple of pages further into the document to the page ending in the numbers 36, the heading of the page is Chemical slash DNA adducts.

A Right.

Q Moving a little further down the page, there's a reference to the P53 gene on chromosome 17.

A Right.

Q These notes were also taken as a result of a -- from a presentation given by a lawyer?

A I don't know that and I can't tell that. Most of the people actually that I ended up having discussions with were scientists.

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Q They were scientists?

A At this particular meeting.

Q Scientists at Shook Hardy's office?

A Yes.

Q Can you remember the names of the scientists?

A No, I can't.

Q Where were the scientists from?

A My impression was that they were employed by Shook, Hardy & Bacon.

Q In-house scientists at the law firm?

A That was my impression.

Q But you don't know for sure?

A No.

Q They didn't identify themselves as scientists being employed by Shook, Hardy & Bacon?

MS. FORBES: Objection to form.

THE WITNESS: I don't recall if they did or not. I have an impression from something. I'm not sure. It might have been because that's what they told me. It's been a while since this meeting.

BY MS. McDEVITT:

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Q Do you understand what the reference is to P53 gene on chromosome 17 functions to inhibit cell proliferation?

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A Basically I'm familiar with the P53 oncogene. It refers to a particular gene that -- it's got, there's a lot of interest in the P53 gene in cancer research now and there has been for some time because it appears to act to inhibit cell proliferation, which is thought to be important in cancer development, so I assume that that's what that reference is to.

Q And you see the note, associated with lung and colon cancer?

A Yes.

Q That was part of the presentation that was made to you?

A Yes.

Q Do you recall anything else about that aspect of the presentation?

A No. No, I don't.

Q Going a couple more pages into this document, the end number would be 38, the Bates number. The top line is Defenses. Do you recall who -- from whose presentation you were making these notes?

A No.

Q Do you believe it was a lawyer at Shook, Hardy & Bacon?

A I think it was most likely a scientist,

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because that's primarily who I was interacting with there.

Q Were there any lawyers from Brown & Williamson present at this meeting?

A No.

Q Any lawyers from BATCo?

A No.

Q In-house lawyers?

A No.

Q So you attended this meeting alone?

A Yes.

Q The next page of the document which ends in 39 on the Bates number, who is Wendell Stone? Do you recall?

A He was one of the scientists who was presenting information to me.

Q Did he identify his affiliation?

A I think he did. My understanding is that he worked for Shook, Hardy & Bacon.

Q All right. The document after Wendell Stone goes on to read Addiction, industry position, anyone can quit if they want to. That was a position that was presented to you at this meeting?

A I think the context was that, you know, in the various lawsuits, the various theories that the

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plaintiffs are pursuing are X, Y and Z and our responses are X, Y and Z, and so I think this was presented in that context.

Q Do you have a specific recollection of the

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context in which it was presented?
A That was just it.
Q Okay. All right. I was just -- I was confused because you said I think it was presented in this context. Did you hold this position before you attended that orientation meeting?
A Oh, I believe that. I mean, I believe that people can quit if they want to. I hadn't really thought about it in the context of litigation and arguments on one side or the other, but it's something that I personally did believe and still believe.
Q It's true, though, isn't it, that people quit other products of dependence, don't they?
A Yes.
Q They can quit cocaine if they want to?
A Some people do.
Q And heroin?
A That's correct.
MR. DUNNE: Okay. Wait. Let's have a full question now. What's the question?
THE WITNESS: Okay.

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BY MS. McDEVITT:
Q People can quit cocaine if they want to; isn't that right?
A Well, people do quit. I think there's differences between cocaine and tobacco, but some people do quit taking cocaine.
Q Going a couple more pages into the document, Bates number ending 41 --
A Four one?
Q That's right.
A Okay.
Q There's in sort of the middle of the page a note underlined, industry response. It seems to read 41 million, I think, ex-smokers have quit. Do you recall who was telling you this figure?
MS. FORBES: Object to the form.
THE WITNESS: No, I don't.
BY MS. McDEVITT:
Q You don't recall whether it was a lawyer or a scientist?
A No, I don't.
MS. FORBES: Object to the form.
BY MS. McDEVITT:
Q To your knowledge, is this number based in any scientific study or compilation of research?

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A I don't recall where this number came from.
Q The next, jumping down a couple of lines --
A Right.
Q -- there's a note, Drug and psychoactive are emotionally loaded words. Is that a note from something -- whoever was presenting the industry response to you at this meeting?
MS. FORBES: Object to the form.
MR. DUNNE: Object, argumentative, vague and ambiguous.
THE WITNESS: Could you restate your question.
BY MS. McDEVITT:

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Q Sure. There's a note here which states Drug and psychoactive are emotionally loaded words. Were you told that this sentence, you know, the words or substance contained in this sentence is an industry response to claims that nicotine is addictive?
A I don't recall.
Q Do you recall the context in which you wrote down this note?
A No.
Q The next page ending in 42, the top note reads Notebooks prepared by Shook Hardy for B&W on selected topics, i.e., addiction, lung cancer,
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et cetera. Issues and defense and plaintiffs' positions are laid out. Were you given such a notebook at this meeting?
A No.
Q Do you recall the context in which you made this note about the notebooks?
A No. Not the specific context, no.
Q Do you remember the general context?
A Well, the general context was presentations and discussions as part of an orientation as to what our defense position was and circumstances as we stood that day.
Q Have you ever seen such a notebook?
A No, I haven't.
Q I'd like to turn a few more pages into this document. It would be the Bates number ending in 48. Actually the previous page starting with 47 references Ingredient testing. The first note that's made, Not much work done in this area, is that in reference to Brown & Williamson's work?
MR. DUNNE: Objection, speculative.
THE WITNESS: I don't recall.
BY MS. McDEVITT:
Q You don't recall? Okay. Turning on to the next page, 1981, B&W additives advisory panel formed.
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Do you recall what you were told about the formation of the B&W additives advisory panel?
MS. FORBES: Object to the form.
THE WITNESS: No.
BY MS. McDEVITT:
Q The next note, 1981, by that time B&W had a written policy on use of ingredients. Do you know what that policy is?
A In 1981?
Q Or was?
A No, no, not 1981.
Q Jumping down a couple of lines, 1977, Law department recommends that only FDA approved additives should be used. Lit review done, but no testing done. Are you able to explain the context of that note?
A I don't recall the specific context again on that either, other than the general context that I'd already mentioned.
Q Currently are only FDA approved additives used at Brown & Williamson?
A All of our additives are FDA approved, with one exception.

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Q What's that?
A That's specifically denatured alcohol number four.

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Q What about at BATCo, do you know whether only FDA approved additives are used --
A I don't know.
Q -- in the manufacture of their products?
A Let me note on SDA number four that I just mentioned --
Q Sure.
A -- that ingredient is specifically approved by the Bureau of Alcohol, Tobacco & Firearms as the solvent to be used for application of flavors to tobacco products.
Q So then that product just falls under another agency jurisdiction?
A Yes.
Q Moving on to the next page, which ends in 49, Dr. Esterle proposed a testing, and I can't read it. It might be program. Can you read it, Dr. Appleton?
A I would say that it was probably program.
Q All right. Develop a toxicity profile on each additive and use Ames test as a screen. Currently is a toxicity profile on each additive used in Brown & Williamson cigarettes compiled?
A We currently conduct an assessment on all ingredients that we use, and the assessment covers a lot of different elements. It looks at the basic

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chemical purity, structure of the substance, the proposed use levels and what estimated exposures might result from that.

We look at the regulatory status. Is it approved as a food additive in various regulations world wide, is it approved as a tobacco additive in those countries that do actually have specific tobacco ingredient regulations, does it occur naturally in tobacco, does it occur naturally in foods, just to get an assessment of what exposure there has been historically to the material in the absence of its use as a tobacco ingredient, and we review health effects literature and we make an assessment of its fate in cigarettes, namely is it likely to transfer intact or become pyrolyzed, if it becomes pyrolyzed, what would be the pyrolysis products.

And we review the health effects literature pertaining to it and what other authoritative bodies have concluded about its use. I don't know if I would call that a profile or not, but we do an assessment touching on all those elements for all of our indicates.

Q And that's what you term the weight of the evidence approach; is that right?
A Well, I wouldn't call it the weight of

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evidence approach, although we do use a weight of evidence approach in assessing all of that.
Q Okay.
A But we do that sort of an assessment on all

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of our ingredients.
Q Is "toxicity profile" a term of art?
A It can be, but it doesn't mean the same thing in all contexts. I guess I would say it's a term of art.
Q What does it entail?
A It entails different things depending upon the objectives and purpose of the assessment. For what I described, it would entail those elements that I just described. If you're a pesticide manufacturer, it may be a bunch of other things, or if you're a pharmaceutical manufacturer, it might involve a lot of other things, so I would say it depends on the nature of the substance that's being evaluated and the objectives for which it's being evaluated.
Q If you're a cigarette manufacturer and you're assessing a substance for use in manufacturing cigarettes, what would a toxicity profile entail?
A It would entail in general terms whatever information one would need to make an assessment as to whether or not addition of that ingredient augments or

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contributes to the health effects of cigarettes that are recognized or attributed to smoking. In the specific sense, it would be those, in my view, those things that I just mentioned.
Q Moving on to the next note next to 1981, which reads, B.A.T. scientists recommend that B&W not test except for Ames and chrome abs, but it might be -- can you read that?
A I think it's chrome abs.
Q Chrome abs, okay. Do you recall the context in which you made this note?
A No, I don't.
Q Do you have any knowledge of a recommendation by B.A.T. scientists that Brown & Williamson not test except for Ames and chromosomal abnormality tests?
A No.
MR. STEIN: Object to the form.
BY MS. McDEVITT:
Q Do Brown & Williamson scientists test outside the Ames and chromosomal abnormality areas today?
A Yeah, we do various types of tests when we deem it to be appropriate. Every assessment is unique, and so it may be that a judgment's made that no additional testing is necessary based on collection of other information that we obtain, but if we feel it's

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necessary to supplement that, we will go beyond those things. We will do pyrolysis testing, for example, the fate of the material in cigarettes. If we feel it's important, we would conduct inhalation studies or other studies that are deemed necessary.
Q Were lawyers present throughout the entirety of this two-day orientation at Shook, Hardy & Bacon?
A I wouldn't say throughout its entirety. Off and on, Shook, Hardy & Bacon lawyers, I think maybe one who was sort of the -- serving as our host or contact was present in and out of the meetings, but it mostly was their scientists meeting with me.
Q And I may have asked you this, and if I did,

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I apologize. Have other scientists at Brown & Williamson undergone a similar orientation at Shook, Hardy & Bacon?
A I don't know if they have or not.
Q You haven't discussed it with them?
A No.
Q Subsequent to this meeting which began on May 29th, 1991, have you had further meetings at Shook, Hardy & Bacon?
A Yes, I have had other meetings at Shook, Hardy & Bacon.
Q Orientation type meetings?

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MR. DUNNE: Object. Wait a second. Object, privilege.
MS. McDEVITT: I'd like to mark this next exhibit as Appleton Deposition Exhibit 9. I don't believe it's a Blyley, Kevin, although I'm informed that --
MR. DUNNE: We will check our records here too.
MS. McDEVITT: -- it may be in other contexts. Is that the case, Jack?
MR. PACE: Yeah, I understood there may be a copy of this --
MS. FOX: I'm not allowed to speak.
MR. PACE: It was my understanding that there was a copy of this document perhaps within the Blyley set which is being used in other cases, which is why we should maybe check on the current status of your objection.
MS. FOX: I'm not allowed to speak.
MR. DUNNE: Have the rules ever stopped?
MS. FOX: Which one is it?
MS. TAN: It actually didn't come up, but I'm going to try another date this

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time. It didn't come up as a violation.
(Appleton Exhibit No. 9 was marked.)
BY MS. McDEVITT:
Q All right. For the record, this is a three-page document entitled file note from initials J.K. Wells dated January 17th, 1985 entitled Document retention, beginning Bates number 680530868, 88 rather, excuse me, through 90. Have you seen this document before, Dr. Appleton?
A Yes.
Q Have you -- I understand it was authored at a time during which you were not employed by Brown & Williamson, but have you had an opportunity to discuss the contents of this document with anyone at Brown & Williamson?
MR. DUNNE: Other than counsel?
BY MS. McDEVITT:
Q Other than counsel.
A Other than counsel? Yes, I've discussed it.
Q With whom did you speak about this document?
A I don't remember specifically. My peers and colleagues within R&D primarily.

http://legacy.library.ucsf.edu/tid/jzn05a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/qsxd0001

Q And what did -- what was the substance of those discussions?
A Basically it was what kind of documents came
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up during the trial, or people had read various accounts of the trial in books and publications and press things, the Minnesota trial, I mean, and, you know, we discussed it in that context, but it wasn't in the context of did this actually happen or does this happen or what has been our experience with that. It's just, you know, what documents and issues came up in the course of the trial.
Q The document refers to certain designated documents which should be considered deadwood. Do you know what "deadwood" means?
A No, I don't, only -- I mean, nothing outside of the context of this document.
Q Is the policy reflected in this document a policy in place at Brown & Williamson?
MR. DUNNE: Object, overly broad.
BY MS. McDEVITT:
Q Does Brown & Williamson have a -- strike my last question.
Does Brown & Williamson have a document retention policy?
A Yes, we do.
Q What is that policy?
A Well, it depends on the department that you're in, but the policy is to retain certain
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documents that are, depending -- the retention schedule depends on the nature of the documents and the type of documents and records, which the retention for various records classes depends on the class of records and it depends to some extent on the operation and function within Brown & Williamson that the documents reside.
Q Specifically referring to documents in the biological studies areas, what is the document retention policy at Brown & Williamson?
A In that area within R&D, it's to retain all documents.
Q For how long?
A My understanding is indefinitely.
Q Has Brown & Williamson retained Project Janus documents?
A Yes.
Q When was the first time you saw this documented, the one that's been marked as Exhibit 9?
A Well, my first recollection of it is during the course of the Minnesota trial. It may have been a couple of days before my testimony or it may have been actually the day of my testimony. I don't remember exactly when.
Q After you saw this document for the first time and returned to Brown & Williamson, did you do any
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follow-up to see whether the statements in the document in fact or the policy reflected in the document in fact was implemented?
MR. DUNNE: Overly broad, object.

http://legacy.library.ucsf.edu/tid/jzn05a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/qsxd0001

Go ahead.
THE WITNESS: I didn't do any follow-up afterwards because I had actually done follow-up beforehand in that I was made aware by the librarian that certain documents had been set aside and stored in an auxiliary storage facility of the library when I first came to Brown & Williamson, and I asked the librarian to take me to those documents and show me and she did and I saw them, and so knew where the documents were and knew what their, you know, where they were, where they were being stored.
BY MS. McDEVITT:
Q How were you informed that certain documents were stored in another section of the library?
A The librarian told me.
Q That was part of your duties and responsibilities at Brown & Williamson?
A At the time, the library reported to me when

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I first came to Brown & Williamson or shortly after I came to Brown & Williamson.
Q Did the librarian tell you why certain documents were stored in a separate area from the rest of the library?
A No. She just said that they were for legal reasons or some general purpose like that, but nothing specific.
Q Do you expect to testify about Brown & Williamson's development of low-yield cigarettes?
A I assume if someone asks me about that, I will. I mean, I'll answer whatever questions that y'all ask me.
Q Well, it's a topic that's not set forth in your report. Is it your understanding that you would be testifying on that topic?
A I would assume that it would come up, but I don't know. It's really kind of up to y'all.
Q What is your opinion as to the effect of lowering tar yield on smokers?
MS. FORBES: Object to the form.
MR. DUNNE: Yeah, that's ambiguous. You mean making them smoke more or making them sick or what is the question?

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BY MS. McDEVITT:
Q What is the effect with respect to smoking and health of lowering tar yield? What have the studies and the research in this area shown?
MS. FORBES: Object to the form.
THE WITNESS: There's been -- well, I would say generally it's an area of uncertainty. There have been studies that suggest a range of possibilities, and that's why it's an area of uncertainty.
There's a lot of epidemiological studies that have compared people who smoke filtered cigarettes versus unfiltered

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cigarettes and therefore have different tar yields, and those studies have generally shown reduction in risks for lung cancer.

On the other hand, there is some indication that those reductions in risk may not be real, people are concerned about compensation, although you would expect that those studies would have taken that into account, but there have been other types of comparisons made, like, for example, relative risks reported in

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CPS two compared to CPS one that some people point to as evidence that there hasn't been a benefit, but then other people have explanations for that, so it's an area that I would say at this point right now is unsettled.

BY MS. McDEVITT:

Q Do you have an understanding regarding certain scientific studies that demonstrate or that purport to demonstrate that low-tar, low-nicotine cigarettes actually result in an increase in adenocarcinoma?

A I'm familiar with that particular hypothesis.

Q In your opinion, is that hypothesis valid?

A I think it's not possible to tell at this point. There's too many uncertainties associated with that research.

Q You mentioned the concept of compensation. Tar and nicotine yields are tested through a machine at the FTC, is that right, or it's an FTC designed method?

A The method was originally developed and sanctioned by the FTC. They're no longer tested by the FTC.

Q They're actually tested by each manufacturer; is that right?

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A Right, and they're -- I'm not sure if this is still in operation, but the Tobacco Research Institute had a testing operation. They basically took it over from the FTC, but I'm not sure what the status of that is anymore. Since the MSA and the dissolution of the Tobacco Institute, it may not be in operation anymore, but the individual companies do continue to test tar and nicotine yields according to the FTC conditions.

Q Do these machines measure the actual amount of tar and nicotine that are delivered to the smoker?

A No, they don't.

Q So some smokers would take in more tar and nicotine?

A Well, they may.

Q Some would take in --

MS. FORBES: Object to the form.

THE WITNESS: Some may -- I'm sorry.

Go ahead.

BY MS. McDEVITT:

Q And some would take in less nicotine?

MS. FORBES: Same objection.

THE WITNESS: That's possible.

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BY MS. McDEVITT:
Q Are you familiar with research, internal Brown & Williamson or BATCo research that's been
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performed on this topic, which I think is known as compensation?
A I've seen statements in documents. I don't recall research right offhand, but I have seen statements in documents that may have reflected research.
Q Do you believe that smokers are aware of the concept of compensation?
MS. FORBES: Object to the form.
MR. DUNNE: Join.
THE WITNESS: The concept of compensation has been researched by the external scientific community for decades. In fact, the FTC I think in 1967 or '68 when they first developed the method, the preamble of the Federal Register notice refers to the issue of compensation and the fact that this test wasn't designed to accurately depict what people get, so that information has been publicly out there for decades.
Now, to the extent to which smokers know that and understand it, I'm not really sure. I suspect there's a range of understandings of it, but I don't really
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have a basis to conclude one way or the other.
BY MS. McDEVITT:
Q Did you play any role in formulating statements Brown & Williamson has made about low-tar, low-nicotine cigarettes on its Web site?
A Yes, I did.
Q Can you tell me or describe your input into formulating that position?
A Yes. Again, I was working with Sharon Boyse on this particular project. I had reviewed the literature in the area, generally concluded that it was an unsettled area and that what we say should reflect that and that we should also provide some indication that the amounts that smokers get may vary depending on how they smoke the cigarette, their smoking behavior. I think that's part of the wording in the Web site statement. I reviewed it, and I'm basically, you know, in agreement with the statement. I mean, I went through a review process and reviewed the literature pertaining to it.
Q Turning back to your report, Appleton Exhibit 1, and reading on page 17 under the heading Ammonia, does Brown & Williamson add ammonia to its commercial cigarettes?
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A We add compounds that are -- that can contribute to ammonia. We don't add ammonia as such directly.
Q One of those compounds is denatured alcohol?

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A No.
Q What are the compounds?
A Diammonium phosphate and ammonium hydroxide.
Q Just those two?
A Yes. Well, urea can also contribute to ammonia.
Q Why are those two -- well, so you use three compounds; is that correct?
A Not in all of the cigarettes, but --
Q Generally?
A -- in our total collection of ingredients that are used in one cigarette or another, those are among them.
Q Why are those compounds used in Brown & Williamson cigarettes?
A They're used to achieve taste characteristics. Well, there are several technical effects. The primary one is to achieve taste characteristics. When ammonia reacts with sugar, it forms a series of substances, primarily pyrazines, which give a very characteristic sort of roasty or

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toasty type flavor. It's the same sort of chemistry that goes on when you roast coffee or roast peanuts or bake bread.

Diammonium phosphate, in addition, when used in reconstituted tobacco, facilitates the release of pectin, which is a natural constituent of tobacco, and that serves to act as a binder, which helps hold together the reconstituted tobacco sheet.

Q When did Brown & Williamson first begin using these compounds?
A Exact date, I don't know. Generally we began using ammonia type compounds in the mid '80's.
Q Was it in reaction to market demands? Specifically was it in an attempt to replicate the success of the Philip Morris product, Marlboro?
A I can't speak to all the circumstances that were involved in the use of the compounds. I'm not directly involved in product development. I assume it was to try to identify taste characteristics that consumers like, and this apparently contributed to a very favorable taste profile in cigarettes.
Q Are you aware of Brown & Williamson's efforts to reverse engineer the Marlboro cigarette?
A Somewhat. I'm aware from internal documents that I've read and some discussions I've had, and then

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I've read a lot about purported efforts in the press.

Q Does the presence of these compounds which lead to ammonia production increase the amount of nicotine that's delivered to the smoker?
A No.
Q Does it increase the rate at which nicotine is delivered to the smoker?
A No.
Q Does it impact the impact or does it enhance the impact of nicotine?
A In my opinion, no.
Q Are there opinions contrary to your view?
A I've seen it expressed in documents that it

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increases impact, but I've also seen documents where it suggested that it didn't; and based on my understanding of the mechanism of how that might be achieved, I would not conclude that it does increase impact.

Q What's the basis for your conclusion that the addition of these ammonia producing compounds does not increase impact?

A The hypothesis that's been advanced on how it might do that is that addition of ammonia might increase the pH of cigarette smoke, which would then result in a shift of the equilibrium between nicotine in the bound state versus the free state. A shift in

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pH would be necessary in order to do that.

We've measured the pH of all of our products, smoke pH of all of our products, and I've made a comparison of those products that contain added ammonia versus those that don't, and what we've shown is that, first of all, the pH of all of our products is relatively low, such that the estimated amount of free nicotine would not be very high at all. It would be less than one percent. And there's no difference in the smoke pH of products that contain added ammonia compared to those that don't.

And also we've looked at the ammonia content of smoke from our products, and the addition of ammonia has only a minuscule effect on smoke ammonia levels, so the levels that we use these compounds in have no measurable effect on smoke pH and a very minuscule effect on smoke ammonia levels, so I can't see how it could have an effect on impact. And I've seen internal research that suggested that it didn't.

Q So free nicotine sort of in the general sense has a higher pH level; is that the correlation?

MS. FORBES: Object to the form.

THE WITNESS: No. It's not that free nicotine has higher pH, it's just that in order -- nicotine can exist in an

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equilibrium between different ionization states and the extent to which the relative proportions of nicotine in its various states is dependent on the pH of the media in which it exists, in this case, smoke. In order to change that equilibrium one way or the other, up or down, you would need to have a change in pH, and it can be estimated based on chemical and physical parameters what percentage of the various fractions of nicotine might be in various ionization states, depending upon what the pH of the media is in which it exists.

So that can all be estimated and calculated, and so then if you know what the pH is, you can make an estimate of what percentage of nicotine would exist in an ionized state versus an unionized state.

BY MS. McDEVITT:

Q What's the difference between extractable nicotine and free nicotine?

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A Free nicotine would be nicotine in an unionized state.
Q Okay.
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A Extractable nicotine is a term that's been used internally within BATCo and B&W as a chemical measure that seeks to estimate the amount of nicotine that's in one state or the other, namely ionized or unionized.
There's been a lot of confusion though in the nomenclature and terminology. It's meant different things to different people. And there's also been some confusion in what that means in that different methods and techniques have been used to measure it, and depending upon which methods and techniques are used, you can get a very different value for extractable nicotine on a given product if you use one set of test parameters as opposed to a difference set, so that's also resulted in some confusion internally within our company as to just exactly what extractable nicotine means, but it has been used incorrectly to be synonymous with free nicotine.
MS. McDEVITT: I'm going to mark a document as Appleton Deposition Exhibit 10.
(Appleton Exhibit No. 10 was marked.)
BY MS. McDEVITT:
Q It's a document entitled Ammoniated Reconstituted Tobaccos.
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MR. DUNNE: Do you know --
MS. McDEVITT: And I don't --
MR. DUNNE: You don't think it is, Jack?
MR. PACE: No, I don't think it is.
BY MS. McDEVITT:
Q It's a multipage document. It bears some handwritten Bates numbers beginning with 400223 in the left-hand corner and then they sort of go away, so --
A Can I have just a few moments to look this over?
Q Certainly.
A Okay.
Q Have you seen this document before, Dr. Appleton?
A It looks familiar. I think I have.
Q Do you know who R.A. Crellin is?
A Yes.
Q Who is he?
A He's a scientist with BATCo.
Q Turning to page four of this document, under the heading B&W Ammonia Technology --
A Yes.
Q -- is the approach, technological approach
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described here currently used at Brown & Williamson?
A Could you point to me where it's described, in what passage you're referring to?
Q Sure. It's the second full paragraph, which

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talks about Brown & Williamson's approach being twofold, firstly to incorporate ammonia and DAP into a paper type process, and then goes on to state that part of the process is incorporation of similar technology into the band-cast PCL practice -- process, rather.

A Well, I'm speaking in terms of history. We're going through an evolution right now.

Q Okay.

A But yes, basically the -- we have several types of reconstituted tobacco. Some contain added ammonia, some do not. For those that do, it basically has been along these lines. One is in a paper type process and the other is in a band-cast type process, as broadly described here.

Q The document goes on to read commonly used designations are CPLC-9 and CP -- CPCL, sorry, dash 9, and CPCL-25. What are those designations? Do you know?

A Those are -- I'm not sure what the -- I assume they're acronyms for something.

Q Right.

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A Which I don't know what they are, that describe various types of reconstituted tobacco.

Q Do you know what the document refers to on the next line when it states preferred sensory properties?

MR. DUNNE: Object, lack of foundation.

THE WITNESS: I assume they're talking about the effects that they're describing earlier in the document, which is, I would say, primarily items number two and three here on page two, which is to counteract irritants and smoke and to react with sugars to produce nonvolatile substances known as deoxyfructosazines and other pyrazines.

BY MS. McDEVITT:

Q What does, in item one on that page, page two, beneficial sensory effects, what does that refer to, if you know?

MR. DUNNE: Object, lack of foundation.

THE WITNESS: I don't know what it refers to. I took it to mean possibly just ammonia per se may have a beneficial

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taste, just adding low concentrations in cigarette smoke, but I don't really know what that means.

(Discussion ensued off the record.)

MS. McDEVITT: I'll mark another exhibit as Appleton Deposition Exhibit 11.

(Appleton Exhibit No. 11 was marked.)

BY MS. McDEVITT:

Q This is a multipage, it's a 54-page document entitled Brown & Williamson Tobacco Corporation Root Technology, A Handbook for Leaf Blenders and Product Developers. Have you seen this document before, Dr. Appleton?

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A Yes, I have.
MR. DUNNE: This does not have a Bates. Okay. You don't believe this is Blyley, do you?
MR. LAROCHELLE: No.
MR. DUNNE: Okay. I don't know if we can check it without a Bates.
BY MS. McDEVITT:
Q When was the first time you saw this document?
A I don't remember exactly when, but it was sometime after this document surfaced publicly.
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Q So you didn't run into this document in the course of your employment with Brown & Williamson?
A Not until it surfaced publicly. I think it was in association with the Waxman hearings, but I wasn't involved in the preparation or didn't know of its existence before that time.
Q Is there currently a leaf blenders manual to your knowledge in use at Brown & Williamson?
A To my knowledge, there isn't. My understanding is that actually this document was never really used as a leaf blenders manual.
Q What's your understanding as to how this document was used?
A More as a sort of an information source to other BATCo companies to explain ammonia technology to them.
Q All right. If you could just turn to page one of this document, which is entitled Introduction, What Ammonia Does.
A Page one?
Q That's right. It actually has a page number on it.
A Right.
Q In the second paragraph, it reads, Cigarette smoke ammonia is entirely different. It effectively
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scavenges those smoke compounds that lead to harshness. It can liberate free nicotine from the blend, which is associated with increases in impact and satisfaction reported by smokers.
What does the -- well, first of all, do you agree with this statement in this document that ammonia can liberate free nicotine from the tobacco blend?
A As we use it in our products, I don't believe that ammonia has these effects that are described here in this document.
Q And that's for the reasons you previously testified to?
A Yes, yes.
Q Do you believe that at one time ammonia as used in Brown & Williamson's products served to liberate free nicotine from the tobacco blend?
A No, I don't. I think that it in theory could have some of these effects if used at very high levels because it could increase smoke pH, but in practice, the way it's used, it doesn't, it doesn't do that.
Q And the basis for your knowledge supporting your opinion that use of ammonia technology at

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Brown & Williamson doesn't have the effect described on page one would be your review of other internal company documents?

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A Internal company documents of our own on smoke pH, but not only that, but just there's a lot of external literature also where smoke pH has been measured, and it basically shows the same thing, that the pH of cigarette products is low. It's usually below 6.2, somewhere in the range of 5.8, 5.5, and this is not just our work, but other work by people like Deitrich Hoffman and others who have measured cigarette products.

Q Is it your understanding that other B.A.T. group companies use ammonia technology in ways different from Brown & Williamson?

MR. DUNNE: Well, object, overly broad.

Go ahead.

THE WITNESS: Yes.

MR. DUNNE: And vague.

BY MS. McDEVITT:

Q Do you know what those ways encompass?

A Some of them.

Q Can you describe them for me?

A Not without getting into trade secret issues.

Q Does ammonia have an effect on the cigarette burn rate?

A Diammonium phosphate can. Ammonia per se

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doesn't, but diammonium phosphate can, mostly because of the phosphate, not the ammonia part. It can decrease burn rate.

Q So a reduction in burn rate would, is it true that that would have an effect on nicotine deliveries going up?

A It depends. If you get a reduction in burn rate, what you would get is a shorter period of time of smolder rate between puffs on an FTC smoking condition. The result of that would be more puffs, more puffs per cigarette, and more total deliveries.

Now, if the cigarette is designed to be in a particular delivery category, let's say a 15 milligram cigarette, then if you made that kind of a change in a cigarette and it turned out to be 17 milligrams instead of 15, it would fall outside the design change in the FTC ratings that are being published, so if that occurred, then an adjustment would be made in some other design parameter such as vent rate or tobacco density or something like that to bring the deliveries in line with what its specified FTC rating is.

So the answer is in theory, it could, but in practice, it wouldn't. It would -- if we determine that a particular cigarette design parameter pushed the deliveries up outside the range that are specified in

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FTC reports, et cetera, then another cigarette design adjustment would be made to bring it back in line with the FTC ranges.

Q So is it fair to say that ammonia can act as

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an impact booster, but in the way you've testified Brown & Williamson is using it, ammonia doesn't act to increase nicotine impact?

MS. FORBES: Object to the form.

THE WITNESS: Could you please restate your question.

(The record was read by the reporter.)

THE WITNESS: I believe my testimony was that in theory, ammonia could increase smoke pH and thereby shift the ionization equilibrium towards more free nicotine, which in theory would result in more impact; however, the way it's used by Brown & Williamson, it doesn't increase smoke pH, so I don't believe that it increases impact.

BY MS. McDEVITT:

Q We've already discussed to some extent Brown & Williamson's policy on additive testing, if you recall, in connection with a few exhibits ago the handwritten notes of that meeting back in 1991 at Shook Hardy, but I just have a few follow-up questions

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on additive testing.

To your knowledge, has Brown & Williamson's policy on testing tobacco or cigarette additives evolved over time?

A Yes.

Q And can you describe for me that evolution?

MR. DUNNE: Object to form.

Go ahead if you can.

THE WITNESS: Well, the policy has always been we will always conduct an assessment and use additives that we believe -- in a way that we do not believe is contributing to the health risks associated with smoking.

There have been differences though in just how to go about assessing that and what those elements might include, and I'm familiar with a policy in the '80's that suggested that we review the status of these ingredients in food law, that an outside opinion may be sought from a toxicologist and/or that we would not use materials that are not natural constituents of tobacco. That sort of reflected an earlier policy, and that's gradually

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changed generally with increasing degrees of information sought to affirm the acceptability of ingredients from both the regulatory point of view and the health effects point of view to where we are today.

BY MS. McDEVITT:

Q Brown & Williamson now uses, according to your expert report, the weight of the evidence approach, right?

A Yes.

Q What additives, if any, has Brown & Williamson rejected under this approach?

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MR. DUNNE: Object, overly broad.
Go ahead if you can.
THE WITNESS: One of the assessment elements that we use, and I don't think I probably spoke to this or mentioned it, was that if any ingredient is deemed to be potentially a public relations issue because someone has raised or created an issue about it that could alarm consumers or could be cast in a negative light, we would not accept ingredients on that basis.
And there have been a number of cases

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where we have recommended against use of ingredients on that basis. One example is tobacco extracts. Tobacco extracts had been used for some time, but a decision was made that there is enough negative public publicity about the use of those ingredients that we would prefer to be responsive to concerns and just simply not use it.

BY MS. McDEVITT:

Q Are you done with your answer?

A Well, I'm just going to add that in some cases, a substance might be, it might be an approved food ingredient, but if it's deemed to be an animal carcinogen, we might not want to use it simply for that basis. Even if the levels of use would be very many orders of magnitude lower than what people may get in foods and we don't personally think there's a health risk, we would just avoid its use to minimize concerns or issues.

Q Can you refer to an example of an additive that was known to be an animal carcinogen that you rejected?

A Cumarin is one example, limonene, acid aldehyde, cinnamyl anthranilate. I can't -- there's

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been a number. I can't remember them all. I think probably ionone, skatol.

Q Does Brown & Williamson test the interactive effects of additives in the cigarettes it manufactures?

A We are -- we've looked at studies. We're currently planning studies and have conducted some work and reviewed literature where ingredients are tested, what we call recipe studies where the product is tested with the entire package of ingredients in it, and it might even be a commercial product. And that -- and then if you collect smoke, that would test the interactive effects of all those ingredients. And there's also been other studies done by other companies where that sort of research was conducted and has been published and is therefore available to us to review and help form a judgment about that particular issue.

Q So is it -- as a matter of Brown & Williamson policy, are the interactive effects of additives tested before a cigarette goes to market?

A I wouldn't say that. What we've done is conducted research to ascertain whether or not there is reason to believe or be concerned that interactive

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effects are playing a role in risks associated with smoking.

We've done that work and we've reviewed

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literature, and there's in my view ample evidence available now to draw a conclusion that there's no indication from the available literature that that is an issue of concern. I know it's a theoretical issue and always will be, but there's been studies that have looked at -- have been conducted in a way that I think provide answers to questions about that, and that research has not yielded any indication that there's any unique hazards associated with combinations of ingredients in cigarettes.

Q Is that research, was that research conducted internally within tobacco companies or is this outside scientific research?

A Some has been conducted internally, some has been conducted externally, some has been conducted by tobacco companies and published. Some of the work that BATCo did is relevant to that issue, so it sort of spans a range of sources.

Q Can you refer me to any of the externally published research on the interactive effects of additives in cigarettes?

A One study that I think is relevant to that question is described in my expert report. It's a study that was conducted by R.J. Reynolds of 73 commercial cigarettes and Ames activity. That study

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showed that the average Ames activity of a wide range of products representing 70 percent of the market share was comparable to a Kentucky reference cigarette, which is essentially additive free, indicating that the wide range of ingredients used don't seem to have an overall impact on activity as measured in that test.

Lorillard Tobacco Company measured over 170 ingredients in cigarettes and inhalation studies, and those studies were conducted as sort of recipes that were applied to tobacco, and those results -- those cigarettes were compared to cigarettes that didn't have added ingredients.

Philip Morris recently published results of several inhalation studies where they measured several different ingredient recipes and inhalation studies and Ames tests.

The cigarette industry right now is engaged with some research in collaboration with the State of Massachusetts looking at constituents in cigarette smoke, 43 constituents thought to be important in smoking and health, and those were on commercial products that represent a wide range of cigarette design parameters, including different ingredient recipes, and generally those studies are showing that the levels of these smoke constituents strongly

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correlate total tar delivery, I mean, just total deliveries, and don't seem to be correlated with any particular cigarette design parameter.

Some of the work that -- well, you're talking

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about only published studies. I was going to refer to one of the Janus studies, which is not published.

But yeah, there's a lot of work. The tobacco working group, the NCI program did some ingredients testing, and there's just a lot of work out there that have generated information that's relevant to combinations of ingredients in cigarettes, and generally these studies have not shown any effective additives at all, either singly or in combination, on whatever measure is being employed.

Q Tobacco manufacturers are by law required to disclose their additives; is that correct?

A Yes, they -- well, to the U.S. government.

Q To the government?

A Yes, there is a reporting obligation.

Q They're disclosed through a law firm in Washington; is that right?

A That's correct.

Q And then that firm in turn discloses the list of additives to the government?

A Well, the companies can report to HHS in any

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number of ways. They don't have to report through a law firm. Some companies report directly, but there's a provision within the law that allows tobacco companies to aggregate their ingredient lists collectively through a third party, which in this case is a law firm, and that's submitted to the government.

Q Is that the procedure by which Brown & Williamson submits its additives information to the government?

A Yes.

Q Is the additives information compiled on a brand-by-brand basis?

A The current requirements within the reporting obligation don't require that, but we provide that information to the public on our Web site.

Q On a brand-by-brand basis, the additives to the cigarettes are reported on the Web site?

A The ingredients are reported in the same format and under the same guidelines that food ingredient labels are prepared, so they don't disclose all the ingredients. Under food labeling guidelines, flavors can be aggregated under a general category called flavors, and that's within the food labeling guidelines, but we disclose for all the brands sold in the United States on a brand-by-brand basis the

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ingredients that are used, you know, following food labeling guidelines, as I indicated.

Q All right. Now, your report states toward the end that you may respond to opinions expressed by Plaintiff's experts in deposition, does it not?

A Yes.

Q Have you reviewed any reports submitted by any of the Plaintiff's experts in the Blue Cross case?

A No.

Q What about any deposition testimony taken of Blue Cross experts?

A No.

Q Any previous trial testimony that some of

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these experts may have given?
A No.
Q So you haven't reviewed any reports or other testimony of Dr. Neal Benowitz?
A No.
Q Or Jonathan Salmon?
A No.
Q Are there any other general areas that you've been asked to give opinions on in this case that you haven't set out in your report?
A Not that I'm aware of.
Q The last subject area, which is on page 16 of
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your expert report which is Appleton Exhibit 1, concerns why Y-1 tobacco. Can you explain the circumstances surrounding Brown & Williamson's development of Y-1 tobacco?
A Yes. I'd indicated in my previous testimony that Brown & Williamson has pursued several different approaches and strategies for achieving reduced-risk cigarettes. One of the approaches that had been, had met with some degree of acceptance from public health authorities or some degree of encouragement was altering the nicotine-to-tar ratio of cigarettes, the concept being that you could deliver a normal amount of nicotine at a reduced level of tar, and that was the basic strategy being pursued in the development of Y-1.
Q What's the basis for your conclusion that cigarettes containing Y-1 tobacco did not increase nicotine deliveries to a statistically significant degree?
A We had compared the nicotine deliveries of cigarettes, cigarette blends that contained Y-1 tobacco after Y-1 was used and compared to before, and what we had done is seen a range of results. Some indicated, some levels, sometimes the levels went down, sometime the levels went up a little bit, sometimes they didn't change; and these were all in cigarettes that used the
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same exact blend but in different brands, so it was difficult to evaluate.
And also in some cases there was such limited data for individual brands that we may only have something like five or six samples before incorporation of Y-1, but only one sample and only one data point, so you couldn't do statistics, so we looked at an overall aggregate of deliveries before Y-1 use, nicotine deliveries, that is, and after, and did a statistical comparison to see if there is an elevation, and the statistical comparison did not show an overall elevation in nicotine delivery after the use of Y-1 and comparable cigarettes before the use of Y-1.
Q Does Y-1 tobacco create smoke with higher pH levels than smoke from regular tobacco?
A No.
Q Does it lead to a higher percentage of free nicotine than regular cigarettes?
A No.
Q Does Brown & Williamson still use Y-1 tobacco in its products?
A I think we may have just completed the

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inventory of Y-1. I'd have to double check that. I know we were close, and we may actually no longer use it, but I don't really know. I know that we're very

close to completing the inventory that we had.

MS. McDEVITT: I'm just going to take a couple of minutes if you don't mind and go over my notes, and then maybe we can wrap up my portion of the examination.

MR. DUNNE: That would be fine.

(A recess was taken.)

MS. McDEVITT: I've reviewed my notes, and I believe I've finished my examination in the Blue Cross case, so thank you very much, Dr. Appleton, for your testimony today.

THE WITNESS: You're welcome.

MR. DUNNE: Thank you.

(Deposition suspended at 5:55 p.m.)

C E R T I F I C A T E

G E O R G I A:

FULTON COUNTY:

I hereby certify that the foregoing deposition was reported, as stated in the caption, and the questions and answers thereto were reduced to the written page under my direction; that the foregoing pages 1 through 255 represent a true and correct transcript of the evidence given. I further certify that I am not in any way financially interested in the result of said case.

Pursuant to Rules and Regulations of the Board of Court Reporting of the Judicial Council of Georgia, I make the following disclosure:

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This, the 1st day of June, 2000.

_____

SUZANNE BEASLEY, B-1184

My commission expires on the 12th day of November, 2002.

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